Global Green Industrial Policy

Navigating Power Dynamics for a Pro-Working-Class, Pro-Development Green Transformation

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Contents

I. Why does green industrial policy matter and why is a global perspective necessary?

In mid-February 2025, a series of protests erupted across Bolivia. In one episode, a group of activists disrupted a government conference in the capital of La Paz, unfurling a banner reading "Water Before Lithium." In another, residents of Río Grande, a village close to the lithium-rich salt flats, disrupted an information session organized by the state-owned lithium company, YLB. The community members took charge of the event, detailing how their rights to prior consultation had not been enforced.[1] The trigger? Two contracts the Luis Arce government had signed several months prior—one with CBC, a consortium of Chinese companies including the battery powerhouse CATL; the other with Uranium One Group, a subsidiary of Russia's state-owned nuclear company, Rosatom—to develop the country's lithium sector.[2]

Although the contracts were still awaiting legislative approval at the time of the protests, anticipation and concern had escalated in equal measure. For the administration of President Luis Arce, the deals with CBC and Uranium One Group heralded the breakthrough moment for the country's lithium sector, which therefore had remained undeveloped despite sizable deposits and investor interest. But for Indigenous organizations such as the one Río Grande residents belonged to, the contracts represented the continuity of neocolonial economic relations, with foreign companies poised to benefit, landscapes slated to be sacrificed, and constitutional rights to consultation violated. Would the Arce administration finally realize its aspiration to industrialize the country's lithium?[3] Or would social

[1] Democracy Now!, "Bolivians Protest Deals Allowing Foreign Firms to Exploit Lithium," February 14, 2025, https://www.democracynow.org/2025/2/14/headlines/ bolivians_protest_deals_allowing_foreign_firms_to_exploit_lithium; Fundación Solón, "Nor López: El tiempo del litio se acabó para el gobierno," February 20, 2025, https://fundacionsolon.org/2025/02/20/nor-lipez-el-tiempo-del-litio-se-acabo-para-el-gobierno.

[2] Daniel Ramos, "Bolivia says China's CBC to invest $1 billion in lithium plants," Reuters, November 26, 2024, https://www.reuters.com/markets/commodities/bolivia-says-chinas-cbc-invest-1-billion-lithium-plants-2024-11-26/.

[3] We use "industrialize" advisedly: The Arce administration does not want merely to extract and export the country's lithium but instead aspires to build the industrial capacity for processing and even battery production, with the hope of technology transfer between its Chinese and Russian partners and the Yacimientos de Litio Bolivianos (YLB), the state-owned lithium company established in 2022.

contention over the contracts complicate the government's latest—but by no means first—attempt to partner with foreign corporations to leverage the country's mineral deposits?

The clash over Bolivia's lithium exemplifies the opportunities and risks facing Global South countries as their policymakers seek to implement green industrial policy (GIP). GIP (defined more fulsomely below) can entail multiple goals: reductions in greenhouse gas emissions and ecological impact; economic development; industrial upgrades; energy transition; and, in some cases, social and environmental benefits for local communities. However, as the pitched battle in Bolivia illustrates, GIP remains deeply shaped by Great Power politics, national security imperatives, and escalating geopolitical struggles for economic dominance.

Indeed, the push for GIP is a global phenomenon—governments of some of the world's most affluent countries too are embracing bold policies to address the climate crisis and economic growth simultaneously. The common thread among the various GIP proposals is proactive state action to make the economy "greener." But this is a deceptively simple definition. What counts as "proactive"? What defines a "green" economic sector or activity? Answers to these questions are informed not only by enormous variation in administrative and fiscal capacity but also stark ideological differences with regard to the relations among state, capital, and society in a planet engulfed by climate crisis and ecological breakdown.

What counts as "proactive"? What defines a "green" economic sector or activity?

With so many variables at play, discussions of GIP among researchers and policymakers are often technical, nuanced, and complex. In the United States and Europe, the debate often polarizes into two positions. On the one side are those who advocate "de-risking": using public policies to encourage—even underwrite—private investment in sectors related to decarbonization and adaptation. In this approach, the tools are primarily "carrots": positive inducements—subsidies, tax breaks, preferential credit, and financial backstopping—to incentivize industry to act. This approach can also include the fast-tracking of regulatory processes for project approval and/or the subsidizing of supportive infrastructure.

In sharp contrast is what Daniela Gabor and Benjamin Braun call the "Big Green State": a public-sector-led green industrial transformation that relies on robust tools of sectoral planning, supply chain coordination, and public ownership.[4] In addition to carrots, the Big Green State does not shrink from using "sticks"—binding regulations enforced by legal and financial sanctions—to discipline and punish capital.

Reducing GIP approaches to one of these two camps, however, obscures as much as it illuminates. Our focus in this primer is to call attention to and examine several crucial analytic dimensions that, at least among United States– and European Union–based policy commentators, are so often omitted from the prevailing terms of debate. Our discussion stems from four key questions:

1. **How does GIP intersect with the entrenched and unequal global architecture of global trade and investment (or, more bluntly, is GIP just neocolonialism and greenwashing with a new face)?**[5]

   It is long-standing historical practice among Global North countries to "kick away the development ladder" by actively obstructing Global South industrialization and relegating low-income countries to the role of purveyors of raw materials and markets for Global North technologies and manufacturing. But another green future is possible, one in which Global South governments and civil societies not only deploy an assertive public sector to address social need and climate safety but also band together to increase their collective leverage, thereby rewriting the rules of the global economic game—in effect, a green, twenty-first-century update to the 1970s vision of a "new international economic order" (NIEO).[6]

[4] Daniela Gabor and Benjamin Braun, "Green Macrofinancial Regimes," *Review of International Political Economy* (2025): 1–27, https://www.tandfonline.com/doi/full/10.1080/09692290.2025.2453504.

[5] On green colonialism and greenwashing, see Christos Zografos and Paul Robbins, "Green Sacrifice Zones, or Why a Green New Deal Cannot Ignore the Cost Shifts of Just Transitions," *One Earth* 3, no. 5 (2020): 543–546, and Hamza Hamouchene and Katie Sandwell (Eds.), *Dismantling Green Colonialism: Energy and Climate Justice in the Arab Region* (Pluto Press, 2023).

[6] Progressive International, "Program of Action on the Construction of a New International Economic Order," August 11, 2024, https://progressive.international/blueprint/9be64adc-4f0d-423d-bc5f-42cc3cef1921-program-of-action-on-the-construction-of-a-new-international-economic-order/en.

2. What is the relationship between GIP and geopolitics?[7]

From the perspective of certain policy elites in the United States, Europe, and China, GIP and geopolitics are one and the same: What's good for the (green) economy is good for national security, and vice versa. This view dovetails with what some have dubbed a "neo-mercantilist" revival: competing states using a muscular mix of soft and hard power—from tariffs and sanctions to threats and invasions—to secure supply chains, protect domestic industry, and undercut competitors.[8] Even the Trump administration, despite its rhetorical rejection of climate action, has continued elements of its predecessors' GIP that overlap with the goals of securing access to critical minerals and expanding market access for US products abroad—both longtime features of the US foreign policy agenda.

From Bolivia to Indonesia to South Africa, governments are attempting to reap the benefits of US-China competition without alienating either hegemon.

However, Great Power politics does not exhaust the realm of international relations. Amid intensifying rivalries, Global South countries are repurposing another paradigm of similar vintage to the NIEO: non-alignment. From Bolivia to Indonesia to South Africa, governments are attempting to reap the benefits of US-China competition without alienating either hegemon. This is a tricky balancing act, however, and the jury is still out on whether our increasingly multipolar (or even "nonpolar") world order provides a real opening for Global South sovereignty and development.

3. How can social movements, worker power, democratic accountability, and the fundamental embeddedness of economic processes in natural systems influence and reorient GIP?

With rare exceptions, political economists tend to assume that state technocrats and corporate executives are the main protagonists in the drama of green development.[9] They also tend to assume a narrow definition of "green": decarbonizing existing

[7] Ilias Alami et al., "Geopolitics of Capitalism: State of Power 2025," Transnational Institute, February 4, 2025, https://www.tni.org/en/publication/geopolitics-of-capitalism.

[8] Eric Helleiner, "The Revival of Neomercantilism," *Phenomenal World*, April 27, 2023, https://www.phenomenalworld.org/analysis/neomercantilism/.

[9] For an example of scholarship that centers non-elite actors and politics, see J. Mijin Cha et al., "A Green New Deal for All: The Centrality of a Worker and Community-Led Just Transition in the US," *Political Geography* 95 (2022): 102594.

energy and industrial systems while adapting physical infrastructure to withstand climate shocks. The first assumption effectively neglects the social and political power of the majority of humanity, while the second treats the climate crisis in isolation from a broader ecological crisis that encompasses biodiversity loss and mass extinction along with major threats to the earth's water, soil, and atmosphere. Neither assumption is empirically grounded. Instead, they both betray deep ideological biases that see people and the planet through the lens of concentrated capital. What would it mean for GIP to engage democratic majorities to not only participate in decision-making but play a role in policy implementation at the community level? And what new horizons would open up if we expanded our green gaze, situating carbon emissions in a broader ecology of socio-natural relationships?

A major shortcoming of current conceptions of GIP is their focus on the domestic level, a kind of "methodological nationalism."

4. **What would the development of a truly global GIP entail? A major shortcoming of current conceptions of GIP is their focus on the domestic level, a kind of "methodological nationalism."[10] As the preceding questions show, however, GIP is immersed and implicated in global capital flows, trade regimes, and security agreements. If states, especially those in the Global South, are constrained by global markets, investors, and trade rules—not to mention by military and economic powerhouses—then in what sense is their GIP a purely "domestic" affair? If Great Powers' geoeconomic ambitions are emboldening new forms of state economic intervention, then how can we grasp the roots or logic of this shift without considering inter-state relations?**

   The methodological nationalism dominant in GIP discourse likewise obscures power relations within countries in the Global North and within countries in the Global South, effectively conflating the interests of political and economic elites with those of the vast majority of those societies. How might a more geographically nuanced account, analyzing inequalities at

[10] John Agnew, "The Territorial Trap: The Geographical Assumptions of International Relations Theory," *Review of international political economy* 1, no. 1 (1994): 53-80.

multiple scales, better illuminate the impediments to and openings for a globally just green transformation?

As this primer will argue, a broader perspective on GIP is not only important but essential. Our earth system and economic system are both global and interconnected; indeed, they are the same system, and the distinction between the two exists more at the level of discourse than material reality. This does not mean that national institutions are irrelevant or that we should focus only on global ecological health rather than local ecosystems. **But it does suggest that any analysis that isolates national units from the dynamic hierarchy of global power relations, or whose environmental commitments are contained by national borders, will miss the fundamental drivers of economic and ecological change.**

In contrast to a status-quo-preserving "transition," we emphasize the need to transform production and provisioning systems to fulfill human needs more fully and equitably, in line with ecosystem boundaries.

In what follows, we take up our four orienting questions in the context of contending paradigms of green industrial policy. **We define good GIP as policy that is conducive to a pro-working-class, pro-development green economic transformation**.[11] By *pro-working-class*, we mean public policies that not only materially uplift working-class people (whether paid or unpaid, employed or unemployed) around the world but also center their organizations and movements as protagonists in the policy process. By *pro-development*, we mean policies that promote human and ecological flourishing. And by green, we mean policies that seek to ensure the livability and flourishing of the planet. Our use of "transformation" is intentional: In contrast to a status-quo-preserving "transition," we emphasize the need to *transform* production and provisioning systems to fulfill human needs more fully and equitably, in line with ecosystem boundaries.

[11] More broadly, in line with Estevez and Forero (2025), we posit that "good" industrial policy—industrial policy that serves human and natural flourishing (or, "eco-humanist" industrial policy)—transforms production and provisioning systems to fulfill human needs more fully and equitably, in line with ecosystem boundaries. Such policies should (i) improve the livability of the planet (by, ideally, expanding the ability of the planet to flourish) and (ii) satisfy basic human needs—and ideally, human aspirations—equitably. From this normative standpoint, good industrial policy is necessarily green industrial policy, because good industrial policy should seek to ensure the livability and flourishing of the planet. And good green industrial policy, even if deployed primarily to ensure the livability and flourishing of the natural world, also needs to strive for coherence with the objective of equitably fulfilling human needs. See Isabel Estevez and Jorge Forero. "How Can (Green) Industrial Policy Serve Human and Natural Flourishing? Critiques, Concepts, and Tools" i3T Working Paper, 2025.

Oriented toward this horizon, we begin our analysis by exploring the distinct meanings of "green" when applied to industrial policy, the degree to which industrial policies are embedded within broader socioeconomic priorities, and how the "boundaries" of the production system and its climate and ecological impacts are defined (these elements are summarized in Table 1).

Next, we take stock of the power relations that currently hinder an equitable—and truly global— green transformation, paying close attention to the enduring importance of industrialization in the Global South, the vicious cycle between economic concentration and anti-development global rules, and the negative implications for working-class people everywhere.

What would it take to build a political base for green internationalism in the Global North?

We then zoom in on the paradigms of GIP most prevalent in the Global South while also looking toward emergent policy proposals that could forge a path to a 21st century NIEO, with a focus on reemergent mechanisms of South–South coordination such as export clubs and pooled public investments.

In our final section, we reflect on the positionality of this primer in the broader landscape of global green industrial policy. As researchers writing from the Global North, for a primarily Global North readership interested in the prerequisites and possibilities for pro-working-class, pro-development green transformations across scales and geographies, we conclude with a crucial question for our moment: *What would it take to build a political base for green internationalism* in the Global North?

Before proceeding, we make one important disclaimer: Although our report makes reference to China (including in our opening vignette above), we do not center China as a source of case studies. This does not imply that China is marginal to the topic of global green industrial policy; in fact, the truth is quite the opposite. China's remarkable progress in arenas such as green technology innovation, manufacture, and deployment; transportation and power sector decarbonization; and state-led coordination of essential supply chains has made it a globally unparalleled GIP laboratory that policymakers around the world are scrambling to emulate—whether

their goal is rivalry or cooperation.[12] However, compared to China, the Global South countries that get particular attention in this report find themselves in a quite different political and economic position. Politically, the vast majority of these states lack anything close to the high level of administrative capacity that characterizes the Chinese state. In addition, in many cases, they are governed by representative democracies that, however fragile or corrupted, involve multi-party electoral competition and robust civil society engagement. Economically, most remain trapped in extractive models of development and burdened by heavy levels of sovereign debt, resulting in more limited fiscal and policy space. And—critically—none have the sheer size of China's domestic market and manufacturing capacity to leverage in negotiations with either foreign investors or Global North governments. This is the challenging political economy in which policymakers governing the world's majority implement GIP, and thus forms our point of analytic departure. That said, we leave it to the experts on China's political economy and green transition to identify which of the Chinese Communist Party's policies could be feasibly diffused to Global South contexts.[13]

Instead, we focus on countries both North and South that remain in an early stage of GIP experimentation and thus face an uncertain future in terms of greening their economies. It bears mentioning, however, that even China's impressive achievements do not yet meet the high bar of a "pro-working-class, pro-development green transformation" as we define it, and for that reason our analysis remains relevant to any rigorous evaluation of China's GIP paradigm.[14]

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[12] John Helveston and Jonas Nahm, "China's Key Role in Scaling Low-Carbon Energy Technologies," *Science* 366, no. 6467 (2019): 794-796; Isabel Hilton, "How China Became the World's Leader on Renewable Energy," *Yale Environment* 36, March 13, 2024, https://e360.yale.edu/features/china-renewable-energy; Jonas Meckling and Jonas Nahm, "The Politics of Technology Bans: Industrial policy Competition and Green Goals for the Auto Industry," *Energy policy* 126 (2019): 470-479; Kyle Chan, ""Managed Competition" in China's State Firms," *High Capacity*, June 21, 2024, https://www.high-capacity.com/p/managed-competition-in-chinas-state; Kyle Chan, "China's Overlapping Tech-Industrial Ecosystems," *High Capacity*, January 22, 2025, https://www.high-capacity.com/p/chinas-overlapping-tech-industrial.

[13] On the political economy of China historically and presently, we suggest reading the work of scholars Kyle Chan, Ho-Fung Chung, Jonas Nahm, Jeremy Wallace, and Isabella Weber, among others.

[14] Jake Werner, "A Program for Progressive China Policy," Quincy Institute for Responsible Statecraft, July 30, 2024, https://quincyinst.org/research/a-program-for-progressive-china-policy/.

II. Competing green industrial policy paradigms

It is impossible to categorize real-world experiences of green industrial policy into clear-cut, coherent paradigms; inevitably, every concrete GIP reflects the messy outcomes of the power play among an array of social actors with competing values, worldviews, and priorities. However, to make sense of what "good" green industrial policies entail, it can be useful to identify some of the common desirable and undesirable attributes we often see in real-world GIP (Table 1).

The most important question in deciding whether a policy feature is desirable or undesirable is whether the feature contributes to the overarching goal of building a more ecologically sustainable and livable planet that expands human flourishing—especially for those most negatively impacted by today's economic system.[15] This key question structures our own rubric, which contrasts the "desirable" from the "undesirable" aspects of actually existing GIP.

A fundamental distinction among different GIPs is their contrasting definitions of "green."

Meanings of "green"

A fundamental distinction among different GIPs is their contrasting definitions of "green." In some (rare) cases, we see holistic interpretations that understand the "green" mandate to include the transformation of production systems to address the full range of environmental threats facing humans and the planet—toxic air, water, and land pollution; resource attrition; biodiversity loss; water vulnerability and drought; and greenhouse gas emissions, among others. **However, in most cases, the "green" mandate is understood very narrowly as "reducing carbon" or "reducing greenhouse gas emissions"—a form of reductionism that risks locking in technological solutions that reduce greenhouse gas emissions while worsening other environmental crises.**

In practice, this "carbon reductionism" is less effective in reducing emissions than more holistic approaches and more broadly complicit

[15] For a longer normative discussion of "green industrial policy," see Isabel Estevez and Jorge Forero, "How Can (Green) Industrial Policy Serve Human and Natural Flourishing? Critiques, Concepts, and Tools" i3T Working Paper, 2025.

in reducing the overall livability of the planet.[16] For example, some current efforts to "decarbonize" the iron and steel industry include the use of a blend of fossil gas and hydrogen as a heat source, a method that increases the emission of non-greenhouse-gas pollutants like nitrogen oxides (NOx).[17] Recent studies suggest that burning hydrogen-enriched fossil gas—even if we assume that the hydrogen is produced from renewable sources—could increase NOx emissions up to six times that of directly burning natural gas.[18]

Another prominent and problematic definition of "greenness" is "the promotion of low-carbon technologies" without factoring in the need to wind down or phase out the extraction and use of fossil fuels or other ecologically harmful energy and industrial technologies. This definition, which supports an "all of the above" energy addition, erroneously assumes that an increase in the supply of "green" technologies—and the zero-emissions energy they enable—is sufficient to solve the ecological challenges facing our production systems. By contrast, more empirically grounded approaches accurately assume that solving those challenges requires both increasing the supply of greener technologies and reducing the demand for dirty technologies and production systems.

[16] For the climate benefits of holistic approaches to climate action that simultaneously tackle emissions and inequality, see Fergus Green and Noel Healy, "How Inequality Fuels Climate Change: The Climate Case for a Green New Deal," *One Earth* 5, no. 6 (2022): 635-649. For a fuller discussion of the different types of reductive definitions of "greenness" in GIP and ensuing policy limitations, see Isabel Estevez and Justus Schollmeyer, "Problem Analysis for Green Industrial Policy," in *International TRIZ Future Conference*, pp. 268-280 (Springer Nature Switzerland, 2023).

[17] Nomvuyo Tena, "First-Ever Test with a 30% Natural Gas/Hydrogen Blend in Steel Forging," Power Engineering International, May 31, 2021, https://www.powerengineeringint.com/gas-oil-fired/first-ever-test-with-a-30-natural-gas-hydrogen-blend-in-steel-forging/. Note that this model is distinct from ones that use (green) hydrogen as a reductant rather than a heat source.

[18] Brian Dabbs, "DOE Funds to Cut Industrial CO2 May Worsen Air Pollution—Report," *Politico*, December 14, 2023, https://subscriber.politicopro.com/article/eenews/2023/12/14/doe-funds-to-cut-industrial-co2-may-worsen-air-pollution-report-00131494; 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; Isabel Estevez et al., "The Political Economy of Steel Decarbonization: Prospects and Challenges of a Green Steel Transition in Dearborn, Michigan," Roosevelt Institute, March 21, 2024, https://rooseveltinstitute.org/publications/the-political-economy-of-steel-decarbonization/.

Table 1. **Desirable and undesirable features of green industrial policy**

Desirable Features	Undesirable Features
Is environmentally holistic. Seeks solutions that address all pressing environmental problems that undermine the livability of the planet—greenhouse gas emissions; toxic air, water, and land pollution; biodiversity loss; and others.	**Is carbon reductionist.** Only tries to solve for carbon mitigation. Ignores the other critical environmental impacts of the production sector. Risks locking in technical solutions that purport to solve for carbon mitigation but exacerbate other environmental problems.
Confronts the climate crisis at system-level scale and scope. Understands that carbon emissions are the result of large-scale systems of manufacturing, transportation, energy, and agriculture. Embraces system change to address the root causes of global warming.	**Isolates carbon emissions from the large-scale systems that produce them**. Narrowly focuses on swapping energy and material sources without system change, ultimately blunting the effectiveness of carbon reduction measures.
Encompasses both wind-up and wind-down of green and non-green technologies. Accurately assumes that solving the ecological challenges of our production systems requires both promoting greener technologies and reducing and/or eliminating the demand/use of dirty technologies.	**Exclusively centers wind-up of green technologies and neglects wind-down of non-green technologies.** Erroneously assumes that increasing supply of certain technologies is sufficient to solve ecological challenges of our production systems.
Is socially and economically embedded. Is coherent with and serves broader societal efforts to improve social and economic well-being.	**Ignores social and economic priorities.** Abstracts away from how different green transformation pathways can improve or undermine other societal goals, like eliminating poverty, reducing inequalities, achieving industrialization, or reducing inflation.
Redistributes power to reduce asymmetries. Changes production systems in a way that increases the economic and political power of those most negatively impacted by the status quo: Working-class people around the globe.	**Reinforces power asymmetries.** Changes production systems in a way that leaves power asymmetries unchanged or further concentrates power among established elites. Neglects the enormous carbon footprints of affluent consumption.

Desirable Features	Undesirable Features
Has holistic production-system boundaries. Seeks solutions that factor in the full environmental impacts along the entire value chain and production networks (e.g., by using environmental life cycle analysis). Contemplates all economic sectors.	**Has narrow production-system boundaries.** Seeks solutions that only factor in environmental and social impacts at the source point (for example, only takes into account emissions at steel facilities, omitting environmental and social impacts generated along the value chain by coal, iron-ore mining, and other operations.). Narrow focus on energy, transportation, and heavy industry; ignores agriculture and services.
Identifies and manages trade-offs among possible solutions. Is clear and explicit about the real impacts of different types of policies and technological solutions, including the environmental and social impacts of "green" technologies like the solar or battery supply chain, which depends on large-scale mining pollution and human rights abuses.	**Ignores or mismanages trade-offs between possible solutions.** For example, overinvests public funds into EV cars and underinvests in mass transit solutions that deliver mobility more efficiently in environmental, social, and economic terms.
Respects policy autonomy. Allows all countries to freely increase labor and environmental standards and to foster the development of local industries (for example, through technology transfer).	**Undermines policy autonomy.** For example, trade agreements that restrict technology transfer; "debt for nature" swaps that privatize the management of development policies and investment rules that make it more difficult to raise environmental standards or promote local industries.
Includes workers and communities in decision-making. Ensures that those who are most affected and often most knowledgeable—the communities living near energy projects and the workers who build them—participate in key decisions, resulting in positive policy feedback loops.	**Relies on top-down, exclusionary, and technocratic decision-making.** Seeks to govern by fiat, with economic and political elites unilaterally empowered to make key decisions, resulting in poorly designed projects with precarious legitimacy and negative policy feedback loops.

The "green" challenge vs. broader socioeconomic priorities

Beyond the "green" dimension, there are strong contrasts in the way that GIPs address the relationship between green transformation on the one hand and broader social and economic processes and challenges on the other. Some approaches to GIP have been emphatic about the need to connect green transformation with broader socioeconomic change on either pragmatic or principled grounds. In the United States, for example, proponents of a "Green New Deal" (GND) have rallied around the slogan of "jobs, justice, climate" and proposed policies and investments that seek to address all three challenges at once. At the level of discourse, policymakers also embraced this view: As Biden noted in 2024, "whether I was trying to convince labor or business to come along, I'd say, 'When I think climate, I think jobs. I think jobs.' And I mean it—good union-paying jobs."[19] Similarly, the administration's policies made nods to marginalized communities by targeting some investments to "disadvantaged" groups.[20]

Unfortunately, in practice, most GIPs have not meaningfully tackled socioeconomic challenges and show limited commitment to redistributing power to reduce asymmetries or inequities.

Unfortunately, in practice, most GIPs have not meaningfully tackled socioeconomic challenges and show limited commitment to redistributing power to reduce asymmetries or inequities. This is not due to a lack of ideas or proposals. In the United States, proponents of the GND and adjacent platforms—the "Red, Black, and Green New Deal" or "Feminist Green New Deal," to name just two—have laid out how social and economic justice can be centered in a green transition.[21] During the negotiations surrounding the 2022 Inflation Reduction Act (IRA), the labor, climate, and economic justice coalition behind the earlier THRIVE Act advocated for including a broad range of labor, equity, and environmental standards and guardrails across all IRA investments to ensure they would tackle green, social, and economic challenges simultaneously.[22] Similar proposals combining

[19] Joe Biden, "Remarks by President Biden on Climate at the Bloomberg Global Business Forum | New York, NY," Biden White House Archives, September 24, 2024, https://bidenwhitehouse.archives.gov/briefing-room/speeches-remarks/2024/09/24/remarks-by-president-biden-on-climate-at-the-bloomberg-global-business-forum-new-york-ny/#:~:text=And%20I've%20been%20pointing,%E2%80%94%20good%20union%2Dpaying%20jobs.

[20] Lew Daly, "Justice40 and the Federal Budget: Challenges of Scale and Implementation," Roosevelt Institute, April 18, 2022, https://rooseveltinstitute.org/publications/justice40-and-the-federal-budget-challenges-of-scale-and-implementation/.

[21] "Feminist Agenda for a Green New Deal," Feminist Agenda for a Green New Deal, accessed April 24, 2025, https://feministgreennewdeal.com/; "The Black Hive," Movement for Black Lives, accessed April 24, 2025, https://m4bl.org/the-black-hive/.

[22] 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/.

ecological sustainability and socioeconomic justice have long been put forth throughout the globe (see, for example, the proposals for Buen Vivir or Sumak Kawsay as a framework for just and sustainable development policy in Latin America, or the proposed "Pacto Ecosocial" advanced in recent years[23]). **What unites these varied frameworks is a clear concern for combining green transformation with improvements in the conditions of those most negatively affected by the economic status quo: Working-class people—and especially those among the working class who are additionally impacted by historical oppression and power asymmetries rooted in race and gender.**

Many critiques of real-world GIPs also point to the need for more proactive public sector leadership to address existing power inequities and the inherent limitations of private-sector-led economies. A private-sector-led green transformation risks reproducing the pathologies of all market-based solutions, including coordination challenges across economic sectors, geographies, and levels of government and counterproductive price incentives (especially given the relatively low profitability of renewables). These realities suggest the need for stronger public-sector leadership, the use of public enterprises, and "whole-of-government" or "whole-economy" planning.[24]

Yet, in practice, these ideas have not been substantially taken up. Instead, GIPs often leave power asymmetries unchanged or further concentrate power among established elites and emerging green capital (which, in the case of the IRA, received major public funding with very few strings attached).[25] **The impacts of this insensitivity to broader societal concerns have been not only directly damaging to the working class but also politically catastrophic for the prospects of building a coalition for green transformation.** Case in point is the reaction of working-class people to the Biden administration's GIP. The bottomless electric vehicle subsidies in the

[23] "Pacto Ecosocial e Intercultural del Sur," Pacto Ecosocial e Intercultural del Sur, accessed April 24, 2025, https://pactoecosocialdelsur.com/.

[24] Johanna Bozuwa et al., "Planning to Build Faster: A Solar Energy Case Study," Roosevelt Institute, October 1, 2024, https://rooseveltinstitute.org/publications/planning-to-build-faster-a-solar-energy-case-study/; Melanie Brusseler, "Coordinating the Green Prosperity Plan," Common Wealth, June 15, 2023, https://www.common-wealth.org/publications/coordinating-the-green-prosperity-plan; Saule T. Omarova, "Why We Need a National Investment Authority," Cornell Legal Studies Research Paper no. 20-34 (April), last revised June 24, 2020, https://ssrn.com/abstract=3566462. Isabel Estevez, Ben Beachy, and Rhiana Gunn-Wright, "The New Economy Will Be Built by Movements," The American Prospect, December 2, 2020, https://prospect.org/economy/the-new-economy-will-be-built-by-movements/.

[25] Estevez, "Multi-Solving, Trade-Offs, and Conditionalities in Industrial Policy."

IRA may have bolstered the EV industry and helped well-off middle-class Americans afford electric cars, but they were not much help to home care workers taking the bus or to families living paycheck to paycheck and barely able to afford even the cheapest cars (which were certain not to be electric).

Nor did those subsidies make auto workers happy. The United Auto Workers withheld their endorsement of Biden's reelection bid until late January 2024, citing the administration's failure to ensure that publicly subsidized EV manufacturing jobs would fall under the hard-earned master agreements that apply to workers in combustion vehicle manufacturing. As Dan Vicente, the Director of UAW Region 9, explained in 2023,

> "I am tired to death of hearing how the Biden administration is the most pro labor—is my best friend. I'm tired of hearing it. Because when you give out billions of dollars of taxpayer investments with no guarantees of those jobs falling under our master agreements, which would make those our jobs, that doesn't make me feel like you're my friend, Biden; it doesn't make me feel like you're my buddy, Joe. [...] And so, we have not endorsed the President yet. And I think that's the best move that our international President Shawn Fain could make.
>
> I am willing to talk to anyone running, I want to talk to Cornell West, I want to talk to Chris Christie. I'll talk to anyone who has my back. Because right now our union [...] is feeling like the traditional Democratic Party doesn't necessarily have our back. And we're not dumb. I get a feeling sometimes that these politicians think we're uneducated and that we're not the most intelligent people. We understand it's an election year. We understand it's going to come down to Pennsylvania, Michigan, Georgia [...] And if you think we're just going to co-sign [...] and rubber stamp endorsements, you're highly mistaken. We need guarantees that the transition into the electric vehicle future is going to secure our members the right to the American middle class. And if you're not willing to assist us in that, I guarantee you there are other people that will.[26]
>
> **Dan Vicente**
> **Director of UAW Region 9**

[26] Tracy Alloway and Joe Weisenthal, hosts, *Odd Lots*, podcast, produced by Bloomberg, "What the UAW Wants from Its Fight with the Big Three," August 7, 2023, https://www.bloomberg.com/news/articles/2023-08-07/uaw-trade-terms-want-does-the-union-want-in-a-new-contract-with-ford-gm.

Narrow vs. holistic production-system boundaries

The neglect of the socioeconomic and power dimensions of GIPs is often compounded by narrow understandings of production-system boundaries. Climate and ecological crises (not to mention inequality) are inherently global problems—they cannot be solved at the national level because our production systems, like our ecological systems, are globally integrated. Many have advocated for GIPs that factor in the environmental and social impacts of industries along their value chains and global production networks—for example, using environmental and social life cycle analysis and standards, yet most real-world GIPs center solutions to environmental and social impacts solely at the "source point" (for example, they seek to reduce emissions at steel facilities, omitting environmental and social impacts generated along the value chain by coal and iron ore mining, etc.). Similarly, most GIPs focus on only a few economic sectors (energy, transportation, heavy industry) while ignoring others (manufacturing, agriculture, services) that are essential for green transformation.

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In many cases, the absence of a holistic, systemic understanding of production systems makes it difficult for GIPs to identify accurately—and manage trade-offs among—competing solutions. **In principle, to design good policy, one must begin with a clear understanding of the impacts of available policies and technological pathways.** This includes, for example, identifying the environmental and social impacts of "green" technologies like the solar supply chain, which generates major water and land pollution from mining and is tied to human rights abuses and the destruction of Indigenous livelihoods. **Acknowledging such trade-offs is essential to encourage better policy solutions: for example, in the case of EV supply chains, more careful investment in mineral prospecting or the allocation of more public funds to mass and active transit solutions (instead of EVs) to deliver more mobility with far fewer material resources, reducing overall environmental, social, and economic harms**.[27], thereby reducing overall environmental, social, and economic harms. Similarly, in the case of solar, holistic approaches can ensure that deployment is strategically located in

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

low-impact, high-benefit sites—like built infrastructure—to avoid unnecessary land use.[28]

Policy autonomy vs. restricted policy space

Finally, at the global level, one of the most problematic features of GIPs is the lack of respect for the policy autonomy of most countries. As we discuss below, powerful countries have relatively free rein to implement green and industrial policies—even when they contravene international rules—but they use those same rules to prevent other countries from using common industrial policies (for both industrial development and green transformation). Similarly, local and international elites routinely use international economic rules to sabotage efforts to raise labor and environmental standards. Many of these obstacles lie in the international economic order and long predate the emergence of GIPs, but they are nonetheless essential for understanding the limits to pro-working-class, globally equitable green transformation policies (we discuss these points at greater length in the sections that follow).

[28] Johanna Bozuwa et al., "Planning to Build Faster: A Solar Energy Case Study," Roosevelt Institute, October 1, 2024, https://rooseveltinstitute.org/publications/planning-to-build-faster-a-solar-energy-case-study.

III. How concentrations of power hinder an equitable global green transformation

In today's global economic order, two forces stand in the way of a pro-worker, pro-equity green transformation: a growing **concentration of economic and political power and the global rules of trade, investment, and finance** produced by those power dynamics.[29]

In other words, the oligopolistic—and increasingly oligarchic—power dynamics that shape our global economy continuously reinforce (and are reinforced by) pro-capital, anti-working class economic rules that suppress workers' rights and environmental standards everywhere and hinder industrial development in the Global South, reinforcing technological and economic divergence at the global level.

In this section, we unpack:

1. **Why Global South (re)industrialization needs to be part of an equitable global GIP agenda; and**
2. **How corporations and economic elites structure the global economic order to hinder both Global South industrialization and working class prosperity across the globe.**

Why industrialization matters to the "developing world"

When it comes to the Global South, the Global North is prone to forgetting the "industrial" component of "green industrial policy." It is all too common for policymakers in the Global North to cast Global South countries more as a source of critical minerals and a market for Global North green technologies than as a partner in building a greener and more equitable global economy. For example, in a March 2025 executive order, President Trump framed the entire world's

[29] This section is based on Isabel Estevez, "Turning the Colonial Mindset on its Head," in *La nueva dinámica de las relaciones Sur-Sur y los desafíos de la integración latinoamericana* (Federal University of Rio de Janeiro, forthcoming).

resource base as a "global raw minerals feedstock" ripe for the taking to supply US refineries.[30] This colonial perspective conveniently overlooks the importance of industrialization to Global South development agendas.

There is good reason that the adjectives "industrialized" and "developed" are used interchangeably to describe rich countries, and it is the same reason that reindustrialization has risen to the top of the economic policy agenda from the United States to Brazil following decades of industrial decline: **Industrialization—as development economists have long noted—has been and will continue to be the engine of productivity gains and economic resilience**.[31] Without a robust industrial sector, innovation and productivity advances are harder to come by, making it difficult to reach the minimal levels of per-capita income needed to ensure decent living standards. In countries where service and extractive sectors and other primary goods are the only sources of national income, the constant threat of commodity market crashes, combined with unequal terms of trade, are a recipe for never-ending economic instability—boom-and-bust cycles, persistent trade imbalances, and the consequent balance-of-payments and debt crises.

There is good reason that the adjectives "industrialized" and "developed" are used interchangeably to describe rich countries.

This is why industrialization—the transformation of undiversified, commodity-dependent economies into diversified economies with a strong manufacturing sector—has long been the central aspiration for poor, economically dependent countries. Just as Alexander Hamilton sought to overcome the United States' economic dependence on Britain through industrial policy for technological development, dependent economies throughout history have sought to follow similar recipes for economic prosperity—albeit with vastly different degrees of success.[32]

[30] Donald J. Trump, "Immediate Measures to Increase American Mineral Production," White House, March 20, 2025, https://www.whitehouse.gov/presidential-actions/2025/03/immediate-measures-to-increase-american-mineral-production/.

[31] Antonio Andreoni and Ha-Joon Chang, "Bringing Production and Employment Back into Development: Alice Amsden's Legacy for a New Developmentalist Agenda," *Cambridge Journal of Regions, Economy and Society* 10, no. 1: 173–187.

[32] Ha-Joon Chang, *Kicking Away the Ladder: Development Strategy in Historical Perspective* (Anthem Press, 2002).

The vicious cycle between economic concentration and anti-development global rules

As development scholars like Ha-Joon Chang have shown, part of the reason that many countries fail to achieve industrialization is rich countries' tendency to "kick away the development ladder"—**that is, sabotage poor countries by preventing them from using the same tools the rich countries themselves used to achieve industrialization.**[33] (Authors like Amir Lebdioui have shown that such exclusionary practices are being replicated now in our moment of green transition.[34])

Strictly speaking, these obstacles to industrialization come not from "countries" but rather from a certain class of actors: profit-driven corporations, financial capital, and economic and political elites. Although these actors are frequently rooted in the Global North, they tend to operate in alliance with Global South elites eager to trade away the development prospects of their countries in exchange for their personal prosperity or political power. It is all too common, for example, for Global South agribusiness and financial elites (often one and the same) to pursue tariff-free access to Global North markets in exchange for onerous trade restrictions on the policy space of their own countries and expanded rights for foreign investors. Proscription of tariffs to protect fledgling industries and unreasonably strict intellectual property rights that privilege incumbent technological powers are just two examples of the advantages conferred on foreign capital to stifle competition and extend their monopoly rights to extract rents from pharmaceutical patents, industrial designs, and much more (Table A1).

Through these restrictions on policy space and technological diffusion, incumbents directly strengthen their oligopoly power by limiting the policy autonomy of developing countries—that is, their means of achieving industrialization and technological upgrading. Wielding their outsized economic power to influence the state apparatus at home and abroad, concentrations of corporate power have also managed to hard-code restrictions on industrialization into

[33] Chang, *Kicking Away the Ladder: Development Strategy in Historical Perspective*.

[34] Amir Lebdioui, *Survival of the Greenest: Economic Transformation in a Climate-Conscious World* (Cambridge, 2024).

international-trade and investment law as well as economic governance institutions.[35]

For illustrative purposes, Table A1 provides a snapshot of how one key global institution—the World Trade Organization—its constituent agreements, and "WTO-plus" bilateral and multilateral trade and investment agreements restrict the use of various types of industrial policies, including procurement policy, infant industry protections, subsidies for new industrial sectors, the use of state-owned enterprises, capital controls and outflow taxes, and performance requirements (e.g., technology transfer). **The combination of the structural tendency toward economic concentration and global rules that further expand the rights and interests of incumbent firms and investors has led to the persistent concentration of industrial capabilities in a limited number of countries and corporations.** This has been as detrimental to global development as it has been to global economic resilience (not to mention Global North economic prosperity).

As a result of the various barriers mounted by "industrialized" states and the international trade and finance regimes they dominate, developing countries have had to perform increasingly difficult acrobatics to climb a development ladder with ever more missing rungs—rungs that were readily available to now-industrialized countries when they were developing. Industrialization has thus proven elusive, and even national efforts to raise labor and environmental standards have been thwarted: Investor-State Dispute Settlement (ISDS) clauses in trade and investment agreements—which allow investors to sue states before international arbitration tribunals rather than national courts and which heavily favor foreign investors—have cost developing countries billions of dollars and induced regulatory chill—countries think twice about raising labor and environmental standards if they stand to lose billions in arbitration processes systematically biased in favor of foreign investors who consider raising standards an "expropriation" of their expected profits.[36]

[35] Antonio Andreoni, Ha-Joon Chang, and Isabel Estevez, "4. New Global Rules, Policy Space, and Quality of Growth in Africa," in *The Quality of Growth in Africa*, eds. Akbar Noman, Joseph E. Stiglitz, and Ravi Kanbur (Columbia University Press, 2019), 111–145.

[36] For more detail, see Andreoni, Chang, and Estevez, "New Global Rules."

How economic concentration harms the working class across the globe

At the global level, the roadblocks to industrialization have stifled competition, a situation that has led to the consolidation and concentration of productive capabilities across many industries and down their value chains—what Peter Nolan has described as a "cascade effect."[37] This has decreased redundancy and consequently increased supply chain vulnerabilities whose concrete consequences—supply shortages and ensuing inflation—have become palpable across the world in the wake of recent economic shocks.[38]

The outsized and direct influence of industry lobbyists, for example, has concrete impacts, from the suppression of labor standards to the passage of intellectual-property laws tailor-made to protect the interests of a few powerful pharmaceutical companies.

The downsides of these dynamics are not limited to the Global South; economic superpowers like the United States have also borne the consequences of increasing corporate concentration. The outsized and direct influence of industry lobbyists, for example, has concrete impacts, from the suppression of labor standards to the passage of intellectual-property laws tailor-made to protect the interests of a few powerful pharmaceutical companies. **As monopoly power grows and crushes prospective competitors, insufficient redundancy in productive capacity threatens access to critical products and resources, from semiconductors to processed rare earths to IV fluids.**

Moreover, as the work of scholars like Isabella Weber and Evan Wasner suggests, corporate concentration has all too easily translated into opportunistic price gouging and inflation in the face of economic shocks, phenomena with existential consequences for the poorest members of the working class.[39]

And, just as corporations exercise downward pressure on labor and environmental standards around the world, they fuel a race to the bottom at home, forcing state governments to audition for

[37] Peter Nolan, Jin Zhang, and Chunhang Liu, "The Global Business Revolution, Systems Integration and the Cascade Effect," in *The Global Business Revolution and the Cascade Effect: Systems Integration in the Aerospace, Beverages and Retail Industries* (Palgrave Macmillan, 2007), 15–35.

[38] Isabella M. Weber and Evan Wasner, "Sellers' Inflation, Profits and Conflict: Why Can Large Firms Hike Prices in an Emergency?" *Review of Keynesian Economics* 11, no. 2 (2023): 183–213, https://hdl.handle.net/20.500.14394/22331.

[39] USDA, "Food Security in the U.S. - Key Statistics and Graphics," last updated January 8, 2025, https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/key-statistics-graphics/#foodsecure; Weber and Wasner, "Sellers' Inflation, Profits and Conflict."

investment by reducing "the cost of doing business"—i.e., lowering labor and environmental standards to increase corporate profits on the backs of working people—and further harming those that suffer the worst impacts of poverty, toxic pollution, and climate breakdown.

All of this suggests that a coordinated green (re)industrialization agenda to deconcentrate global productive capabilities, combined with collaboration to raise labor and environmental standards across the global economy, would be overwhelmingly positive not only for the developing world, but for the resilience of the global economy and for working people worldwide.

However, with the United States doubling down on colonialist policies, the prospects of an equitable, pro-working-class, postcolonial green transformation appear dim.[40] In that context, Global South governments—and social actors across the globe—are increasingly looking to form new alliances and coordinated economic agendas that do not depend on benevolence from Global North governments.

[40] Tobita Chow, "Why Trump's Tariffs Are a Losing Bet to Keep China at Bay and Remake the Global Order," *In These Times*, March 26, 2025, https://inthesetimes.com/article/trump-china-foreign-policy-imperialism.

IV. Green industrial policy in the Global South: Prospects and headwinds

Competing GIP paradigms and development experiences in the Global South

While in recent years the Global North has made massive investments in green and ostensibly "green" policies, Global South GIP has been hamstrung by a lack of fiscal resources, restrictive trade rules, high debt burdens, and the dominance of fiscal austerity. With this important distinction in mind, it is nevertheless the case that Global South approaches to GIP exhibit many of the same tensions among competing paradigms as those of the Global North.

Global South GIP has been hamstrung by a lack of fiscal resources, restrictive trade rules, high debt burdens, and the dominance of fiscal austerity.

In the Global South, mainstream GIP discussions often exhibit many of the undesirable features discussed in Section 2 (see Table 1). While the policy conversation is generally more sensitive to ecological crises like biodiversity loss, it still often suffers from carbon reductionism, ignoring and exacerbating broader environmental concerns. Similarly, Global South policy proposals tend to ignore the wind-down of dirty energy and production technologies as a critical counterpart to the wind-up of cleaner alternatives.

Indeed, much like in the Global North, mainstream GIP discourse in the Global South stands in stark contrast to the more sophisticated and transformative paradigms emanating from their societies. Alternative Global South thinking on GIP builds on long-lived intellectual traditions. In the case of Latin America, those traditions have their roots in Indigenous and anti-colonial movements, which have traditionally centered critiques of overexploitation of nature and global power asymmetries. Over the course of many decades, they have also inspired policy paradigms. For example, the aspiration to overcome a subservient position in the international division of labor inspired dependency theory and structuralism—twentieth-century schools of thought that produced many key insights about the nature of global technological and economic divergence, the pathways for

economic transformation and industrialization, and the roles of industrial and trade policy in those processes.[41]

In more recent decades, the ecological critiques pioneered by Indigenous movements have inspired new policy paradigms.

In more recent decades, the ecological critiques pioneered by Indigenous movements have inspired new policy paradigms that seek to embed environmental concerns in transformational economic agendas and to challenge "development" models that ignored ecological boundaries. For example, in the Andean region of Latin America during the early twenty-first century, "development" was displaced by "Sumak Kawsay" or "Buen Vivir"—an ecologically embedded concept of "the good life"—as the normative framework for economic and social policy. In Ecuador (during the decade spanning 2007–2017), the Ministry of Planning and Development was renamed the "Ministry of Planning for Buen Vivir," and biophysical research and planning were initiated to better understand the material and ecological implications of producing the food, energy, construction materials, and other inputs necessary to meet decent living standards. Similarly, the country's industrial strategy featured a massive expansion of renewables (primarily hydropower) and the development of "bio-industries" that sought to develop technologically sophisticated products that built on the country's biodiversity rather than exploited it. Long before "Buy Clean" policies emerged in the United States, Ecuador implemented a pro-equity social and ecological public procurement policy that prioritized cooperatives, small and medium enterprises, and local producers with environmental certifications for the provision of everything from school uniforms to medical devices.[42]

These initiatives were also full of contradictions. For example, the wind-down of fossil fuels was initially pursued and later deprioritized, while large-scale mining was increasingly promoted, leading to conflicts with the country's largest Indigenous organizations and environmental activists (tensions similar to those surrounding Bolivia's nascent lithium industry, discussed above).[43] **But they still**

[41] Margarita Fajardo, *The World that Latin America Created: The United Nations Economic Commission for Latin America in the Development Era* (Harvard University Press, 2022).

[42] Isabel Estevez, "A Humanist Perspective on Economic Policy: Ecuador's Economic Reforms and Industrial Policy 2007-2017," (PhD diss., University of Cambridge, 2022), https://www.repository.cam.ac.uk/items/824e34c7-e469-4972-b752-55cee3a1cc5d.

[43] Matthieu Le Quang and Tamia Vercoutère, *Ecosocialismo y Buen Vivir: Diálogo entre dos alternativas al capitalismo*, IAEN, 2013, https://www.fuhem.es/media/cdv/file/biblioteca/Analisis/Buen_vivir/Ecosocialismo_y_Buen_Vivir_Le_Quang_Vercoutere.pdf; Thea Riofrancos, *Resource Radicals: From Petro-Nationalism to Post-Extractivism in Ecuador* (Duke University Press, 2020).

showed progress toward more integrated models for green transformation that address a broader agenda for human flourishing and necessitate a redistribution of economic and political power.

This progress has been quite palpable. In recent years, for example, thanks to rights first enshrined in the 2008 Ecuadorian Constitution—such as rights of nature and Indigenous peoples' rights to prior consultation in recent years—multiple court cases and popular referenda have successfully blocked large-scale mining projects and required more robust forms of consent from Indigenous peoples prior to extraction in Amazonian territory.[44]

Trends and tensions in recent green industrial policy experiences in the Global South

In recent years, Global South governments have continued to find ways to deploy a mix of policy tools to shift away from mere extraction and export and toward productive activities with higher value added, technological sophistication, and job-creating potential, including manufacturing. These tools include local content and technology transfer requirements, export bans, procurement standards, and other incentives for "localization" (i.e., using domestic resources for domestic production)(Appendix Table 2 outlines the industrial policy toolkit). In what follows we review a handful of the most innovative cases.

Colombia

In its three years in power, President Gustavo Petro's administration has issued no new licenses for oil or gas exploration.[45] The policy shift—which makes good on his 2022 campaign promise—does not affect the status of existing oil and gas projects (or new investments covered by the umbrella of extant contracts). It also is not codified in

[44] Liz Kimbrough, "Ecuador Court Upholds 'Rights of Nature,' Blocks Intag Valley Copper Mine," *Mongabay*, March 31, 2023, https://news.mongabay.com/2023/03/ecuador-court-upholds-rights-of-nature-blocks-intag-valley-copper-mine/; Alexandra Valencia, "With Court's Backing, Ecuador's Indigenous Block Amazon Mining," Reuters, April 1, 2022, https://www.reuters.com/world/americas/with-courts-backing-ecuadors-indigenous-block-amazon-mining-2022-04-01/.

[45] Our review of the Colombia case draws on Daniel Chavez and Lala Peñaranda, "State-Run Oil Companies and the Energy Transition The case of Colombia's Ecopetrol," Transnational Institute, February 8, 2024, https://www.tni.org/en/article/state-run-oil-companies-and-the-energy-transition, and Guy Edwards, "The Petro Government's Gig Gamble on Ending Fossil Fuel Licensing," University of Sussex, last updated January 29, 2025, https://www.sussex.ac.uk/broadcast/read/66918.

statute, thus making it vulnerable to rollback by a future government. **But these facts should not detract from the significance of this crucial step toward fossil fuel phaseout.** Fossil fuels have been a pillar of Colombia's economy, accounting for 10–20 percent of government revenue and about half of export revenue.[46] The state-owned oil and gas enterprise Ecopetrol alone contributes $8 billion annually to government coffers.

When it comes to GIP, low- and middle-income oil exporters like Colombia are in a serious bind: They can drain their remaining resources—Colombia's O&G reserves are estimated to be exhausted in under 8 years—while attempting to buffer the price volatility that would only worsen under conditions of a global energy transition. Given how fiscally dependent such exporters are on oil-related revenues, during market downturns austerity and political instability constitute a real risk. Given this context, it is all the more remarkable that Petro's government has stayed true to a pledge that stalls the expansion of the fossil fuel frontier.

Petro's government has stayed true to a pledge that stalls the expansion of the fossil fuel frontier.

Concomitantly, Ecopetrol is in the process of diversifying its investments: 40 percent of planned outlays for 2024 pertain to energy-transition-related needs, including transmission lines.[47] The state-owned enterprise also officially stopped investing in fracking, a decision that, after much internal debate, was supported by the labor union representing its workers (as was a more thorough commitment to energy transition).

However, major challenges still loom. Ecopetrol is overly focused on investing in fossil gas "'green' hydrogen, 'green' ammonia, and 'methanol'" (which are dubiously categorized as part of an energy transition due to their lower emissions than coal).[48] And, in order for Ecopetrol to adopt a larger role in decarbonizing the power sector, legislative reforms that prohibit vertical integration of energy companies would be necessary. These challenges aside, the efforts of the Colombian government, Ecopetrol, and the labor union Unión Sindical Obrera (USO) underscore the centrality of public-sector

[46] Jacopo Dettoni, "Opinion | What Happens When a Country Bans Oil and Gas?" FDI Intelligence, May 15, 2024, https://www.fdiintelligence.com/content/9eb8ae9c-8731-5f19-bc47-9dfb69af9038.

[47] This goal was not met, ultimately, but based on Lala Peñaranda's calculations, 33 percent of investments were indeed directed towards these goals. Personal communication with authors, 04/12/25

[48] Chavez and Peñaranda, "State-Run Oil Companies."

coordination, ownership, and workers themselves in any truly transformative Global South GIP.

Mexico

The inauguration of climate scientist Claudia Sheinbaum's administration in October 2024 has raised expectations for the country's green transformation agenda. Amid escalating environmental threats—including a severe water scarcity crisis—Sheinbaum has set ambitious targets for emissions reductions and renewable energy expansion as well as plans for public-sector-led industrial development, including the active use of public enterprises.[49] Some specific initiatives include a new lithium research institute to increase technological sophistication and value-addition in downstream value chains and a large-scale circular economy industrial park.[50] The administration has not announced plans for a fossil-fuel wind-down, suggesting continuity with a vision for energy sovereignty that heavily relies on fossil fuels; but it has defined as its goal the stabilization of output (rather than growth of production or exports).[51] Meanwhile, the government's broader infrastructure plans (for example, the Tren Maya[52]) have stirred conflict with local communities and environmental advocates.

The administration's industrial development and green transition plans are also threatened by the United States–Mexico–Canada Agreement (USMCA) (formerly NAFTA) framework, which formally proscribes the use of tools like public procurement to stimulate technology transfer and local development (see the procurement

[49] Kate Aronoff, "How Claudia Sheinbaum Could Change Mexico," *The New Republic*, May 31, 2024, https://newrepublic.com/article/182099/claudia-sheinbaum-mexico-president-climate-scientist; Gobierno de México, "Plan México," accessed April 24, 2025, https://www.planmexico.gob.mx/.

[50] Gobierno de México, "Plan México."

[51] Presidencia de la República, "Presidenta Claudia Sheinbaum presenta Plan de Trabajo 2025-2030 de Pemex para garantizar la soberanía nacional," February 12, 2025, https://www.gob.mx/presidencia/prensa/presidenta-claudia-sheinbaum-presenta-plan-de-trabajo-2025-2030-de-pemex-para-garantizar-la-soberania-nacional.

[52] Teresa De Miguel, Megan Janetsky, and Rodrigo Abd, "Mexico's Maya Train is Destroying Ancient Caves. Learn about the Beautiful 'Cenotes' under Threat," Associated Press, last updated May 31, 2024, https://apnews.com/article/mexico-elections-maya-train-andres-manuel-lopez-obrador-cenotes-ea36514d061a670b0a3833e4fdc8e3e0.

clauses of NAFTA 2.0/USMCA.[53]). These restrictions have not impacted the United States' ability to use procurement-based industrial policies (as evidenced by Buy American[54] and Buy America-Build America[55] procurement rules), but they may impact Mexico. In practice, these kinds of rules tend to be more aggressively enforced in geopolitically weaker countries.

The trade agreement also leaves Mexico vulnerable to attacks from foreign corporations through ISDS. This fact reveals much about the global power dynamics that structure GIP. **Whereas the 2019 USMCA eliminated ISDS between the United States and Canada, it remained in place for Mexico for government contracts in the oil, natural gas, power generation, infrastructure, and telecommunications sectors, among others** (no doubt at the behest of corporate giants in those sectors).[56]

On top of these inequalities and double standards, Mexico is also bearing the brunt of tariff threats and bullying demands from the United States, its largest trading partner.

On top of these inequalities and double standards, Mexico is also bearing the brunt of tariff threats and bullying demands from the United States, its largest trading partner. Among the concessions the United States is demanding is a commitment to shun Chinese products and investment. This undermines Mexico's options when it comes to negotiating technology transfer agreements with leading global producers in the EV industry and beyond.

Brazil

Decades of deindustrialization and growing climate and ecological crises have motivated renewed interest in industrial policy and green transformation since Lula's return to power in 2023.[57] The administration has put forth a number of plans that lay out a vision,

[53] The USMCA procurement chapter proscribes "offsets" and defines offsets as "any condition or undertaking that encourages local development or improves a Party's balance-of-payments accounts, such as the use of domestic content, the licensing of technology, investment, counter-trade and similar action or requirement": "Chapter 13: Government Procurement," Agreement between the United States of America, the United Mexican States, and Canada Text, Office of the United States Trade Representative, July 1, 2020, https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/13_Government_Procurement.pdf.

[54] US Government Accountability Office, "The Buy American Act," April 5, 1978, accessed May 28, 2025, https://www.gao.gov/products/105519.

[55] US Office of Acquisition Management, "Build America Buy America," accessed May 28, 2025, https://www.commerce.gov/oam/build-america-buy-america.

[56] Kyla H. Kitamura, Danielle M. Trachtenberg, M. Angeles Villarreal, "U.S.-Mexico-Canada (USMCA) Trade Agreement," Congressional Research Service, December 6, 2024, https://www.congress.gov/crs-product/IF10997.

[57] Gabriel Palma, "Four Sources of De-Industrialisation and a New Concept of the Dutch Disease," *Beyond Reforms: Structural Dynamics and Macroeconomic Vulnerability* 3, no. 5 (2005): 71–116.

roadmap, and targets for both.[58] In practice, however, enduring high capital costs and fiscal constraints—the product of an uneasy political coalition—have limited the scale of investments in GIP. The government's efforts to ramp up the use of public procurement as a tool for economic transformation, however, may pose new opportunities to transform public spending into strategic GIP investments. According to the OECD, Brazil's procurement spending represents around 15 percent of GDP. If the government succeeds in coordinating among its institutions and different levels of government to implement a whole-of-government GIP, Brazil's procurement budget could become a powerful tool for economic transformation.

Chile

Successive Chilean governments have attempted to leverage the country's vast lithium reserves to enter into new public-private partnerships and stimulate a battery sector. Regarding the former, the state-owned copper company (CODELCO) is pursuing various joint ventures with shareholder-owned multinationals, with the aim of inserting the public sector into the business of lithium mining. President Gabriel Boric has promised to expand the state's role while also being more inclusive of Indigenous communities and civil society in governance—but this commitment is still being tested, and the government's policies have been met with local Indigenous protest and legal actions claiming exclusion from decision-making.[59] Meanwhile, despite preferential pricing for any lithium used in domestic industry, it took years—and multiple tender processes—to garner investment commitments from battery makers. Eventually, two Chinese firms committed to building plants, but both of them—BYD and Tsingshan—have put those plans on hold amid market uncertainty.[60] This example, along with others above, illustrate that policy adoption does not guarantee desired outcomes, and transforming extractive and export economies into industrial ones

[58] For an overview, see Marco Rocha, Pedro Romero Marques, José Bergamin, Lucca Henrique Rodrigues, Luiza Nassif, and Pedro Rossi, "Qual o plano de desenvolvimento do terceiro Lula? Reflexões a partir de um novo paradigma de política industrial," Transforma Economía UNICAMP, Nota de Economia, June 2024, https://transformaeconomia.org/wp-content/uploads/2024/06/NT03-PT.pdf.

[59] "Protest at Chile's lithium salt flats snarls roads to SQM, Albemarle" Reuters, January 10, 2024 and Daina Beth Solomon, "Indigenous groups ask Chile court to pause community review of Codelco-SQM lithium deal," Reuters, July 15, 2025.

[60] Daina Beth Solomon, "China's BYD, Tsingshan scrap plans for Chile lithium plants" Reuters, May 7, 2025 and "China's Tsingshan 'has not given up' on Chile lithium plans despite plant retreat" Reuters, May 9, 2025.

requires not only persistence but historical circumstances—e.g., high prices that give producer countries more bargaining power—and, most importantly, political savvy (we return to this below).

In addition to a potential value-added lithium sector, President Boric has embraced a "green hydrogen" (hydrogen produced using renewable energy sources) development strategy. The strategy encompasses public R&D efforts, offtake and financing agreements, and fast-tracked permitting.[61] There are, however, real tradeoffs with using the country's enviable renewable energy assets for the purpose of producing hydrogen fuel for export, as well as concerns about the environmental impacts of this "green" industry.[62]

In Africa and Southeast Asia, as in Latin America, contemporary green industrial policies pertaining to energy transition minerals illustrate the enduring relevance of dependency theory, which laid bare the negative consequences of a purely extractive model of development.

Beyond Latin America

In Africa and Southeast Asia, as in Latin America, contemporary green industrial policies pertaining to energy transition minerals illustrate the enduring relevance of dependency theory, which laid bare the negative consequences of a purely extractive model of development.[63] As this theory showed, extractive sectors that are themselves the legacy of colonial and neocolonial economic arrangements are structured by unequal exchange (economic and ecological) and tend to result in "enclave" economies—that is, economies disconnected from broader economic development. As we discussed above, high levels of commodity volatility, wherein raw materials are subject to dramatic price cycles, also pose dangers to economies built on the extraction model—and constitute an additional reason to promote industrialization.

For example, as a result of a ban on exporting raw nickel starting in 2014, Indonesia has spurred new industries of processing and refining as well as established Southeast Asia's first battery plant. This is a classic case of "downstreaming" (i.e., building out the value-added industries downstream of a given extractive sector). Indonesia's achievements in this regard also have a clear geoeconomic dimension. Along with Vietnam, Poland, Mexico, and Morocco,

[61] "National Strategy for Green Hydrogen" International Energy Agency, February 19, 2025.

[62] Aimee Gabay, "Locals fear Chile's new port project for green energy will disrupt ecosystems," *Mongabay*, July 11, 2025.

[63] Our analysis of critical-minerals governance here and in the passages that follow is informed by Amir Lebdioui and Thea Riofrancos, "'Critical Minerals' and Resource Nationalism 2.0: Why the Policy is More Critical than the Mineral," in *Resource Nationalism: Histories, Practices, and Theorizations*, eds. Jesse Salah Ovadia, Richard Saunders, and Jewellord T. Nem Singh (Edward Elgar Publishing, forthcoming).

Indonesia is one of the so-called "connector countries": places that form a crucial linkage between rival economic blocs. Indonesia's growing battery sector has attracted both US and Chinese investment—although Chinese firms do increasingly predominate.[64]

Whereas Indonesia exemplifies the kind of success that can flow from technological upgrading, the experience of Zimbabwe shows that the policy can be tricky to implement. The country likewise banned lithium exports in 2022 but then backpedaled, extending the deadline for lithium companies to process locally.[65] The stated reason was the price crash and increased wariness of dampening mining investment.

Plans to expand and industrialize mining also raise the question of the "green" in GIP. A simplistic approach would label such activities as green because they furnish inputs to electric-vehicle supply chains, which in turn contribute to decarbonizing transportation. But, as we argued above, this is a limited—and, at times, misleading—definition of "green." **To understand if, say, Indonesia's nickel downstreaming policies are truly green, it is imperative to take a more holistic approach, accounting for both supply-chain-related emissions as well as other forms of ecological harm.** Indonesia's proliferating nickel refining plants, for example, are being powered by dirty coal energy, which not only contributes to climate change but also subjects local communities to toxic pollution.

In addition, the nickel mining itself has caused environmental devastation as well as social conflict. In 2024, landslides and flooding that environmental advocates have linked to land disturbances and deforestation related to mining and processing caused 1,700 people to evacuate large swaths of the Maluku and Sulawesi regions.[66] Civil society activism demanding remediation and accountability, meanwhile, have been met with government repression. Labor conditions at the nickel refineries are extremely dangerous, resulting

[64] Enda Curran et al., "These Five Countries Are Key Economic 'Connectors' in a Fragmenting World" *Bloomberg*, November 2, 2023.

[65] Nyasha Chingono, "Zimbabwe Softens Stance on Local Lithium Processing after Price Collapse," Reuters, October 3, 2024, https://www.reuters.com/markets/commodities/zimbabwe-softens-stance-local-lithium-processing-after-price-collapse-2024-10-03/.

[66] Christ Belseran, Irfan Maulana, and Asad Asnawi, "Indonesia Civil Society Rallies behind Student Investigated over Nickel Protest," *Mongabay*, October 15, 2024, https://news.mongabay.com/2024/10/indonesia-civil-society-rallies-behind-student-investigated-over-nickel-protest/.

in multiple deaths that, in turn, have spurred worker protests.[67] Ultimately, without environmental protection, human rights enforcement, and worker dignity, "green" industrial policies can reproduce the most exploitative and dangerous power relations.

As we discussed above, lax standards are structurally motivated by a race to the bottom as countries seek foreign investment from multinational corporations or aim to become suppliers for monopsonistic global firms. **The bad incentives at work in Global South GIP highlight the need for international cooperation to reverse this trend and strengthen green industrialization.** Most Global South countries, with their small markets, limited fiscal capacity, high debt burdens, and weak geopolitical positions, find it difficult to implement ambitious industrialization or green transformation policies on their own. As the prospects of constructive cooperation from the Global North become increasingly improbable, South–South cooperation and the creation of new fora for cooperation are reemerging as a political priority.

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New spaces for international cooperation on green industrial policy

A New–and Green–International Economic Order?

The latter half of the twentieth century saw the creation of new institutions of global governance charged with a development mandate. The United Nations, the International Monetary Fund, the World Bank, the World Trade Organization—all ostensibly held the promise of a more equitable global economic system. After a quarter century of institution building, however, it was clear that they were headed in the wrong direction, and Global South countries saw the need to coalesce more forcefully around a movement for a "New International Economic Order" (NIEO): a postcolonial global economic system that could correct global inequities and uphold national sovereignty. The NIEO reform agenda was crystallized in a UN Declaration and Program of Action in 1974, but the evolution of the global economic order continued to head in the opposite direction. As discussed above, with the rise of neoliberalism, multilateral

[67] Agence France Presse, "Riot at Chinese-Funded Nickel Plant in Indonesia Kills Two," Barron's, January 16, 2023, https://www.barrons.com/news/riot-at-chinese-funded-nickel-plant-in-indonesia-kills-two-01673850608.

With the rise of neoliberalism, multilateral institutions became increasingly friendly to global capital and increasingly obstructive of Global South development and autonomy.

The structural evolution of the global economy reflects those institutional patterns. Half a century after the NIEO Declaration, the economic divergence between North and South has become more pronounced. Though mainstream interpretations of global inequality and poverty statistics often suggest a more favorable record of neoliberal globalization (decreased poverty), such accounts—as scholars like Robert Wade have shown—rely on data that are severely skewed by the remarkable poverty reduction achieved by China's decidedly not neoliberal policies and astute management of globalization.[68]

Take China out of the equation, and the reality looks quite different. In fact, **long-run studies have shown that the patterns of global economic divergence we see today have persisted since the first wave of globalization, when colonial dynamics became structurally entrenched.[69]**

These realities are not lost on Global South countries. As the crisis of neoliberalism and its institutions deepens, calls for an NIEO are growing. This time around, however, trust in global institutions is (with good reason) much weaker, and alternative institutions for economic coordination, reflecting geoeconomic reconfigurations of power, are gaining ground. The emergence of BRICS and alternative development finance institutions, like the BRICS bank and the Asian Infrastructure Investment Bank (AIIB), are among the more prominent examples of new poles of cooperation; but there is also renewed interest in regional coordination and regional economic integration in Africa and Latin America (not to mention growing interest in old and new mechanisms for South–South industrial development, which we discuss below).

South-South collaborations stem from a recognition that, historically, fragmentation has been a major bottleneck for economic transformation and prosperity in the Global South. While Global North

[68] Although extreme poverty, indeed, decreased by half a billion people from 1981 to 2005, when China is not included in the calculation, the size of the decrease drops to 0.1 billion. When one uses the slightly higher "ordinary" poverty line, the picture becomes even less heartening. Although poverty still declines as a proportion of the world population, the number of people that fall within the category rises by 0.4 billion with China, and 0.8 billion without it. See Robert Hunter Wade, *"Growth, Inequality, and Poverty: Arguments, Evidence, and Economists,"* in *Global Political Economy*, ed. John Ravehill (Oxford University Press, 2014), 305–343. For more on China's development model, see Isabella M. Weber, *How China Escaped Shock Therapy: The Market Reform Debate* (Oxford: Routledge, 2021).

[69] Isabella M. Weber, Gregor Semieniuk, Tom Westland, and Junshang Liang, *"What You Exported Matters: Persistence in Productive Capabilities across Two Eras of Globalization,"* University of Massachusetts Amherst, Working Paper, 2021, https://scholarworks.umass.edu/entities/publication/0a1d58ed-d012-4fef-8dd2-70b2d732cd56.

countries have been successful in creating common markets, regionalized infrastructure systems, and coordinated production networks and production clubs, most Global South countries have continued to operate in isolation, competing with one another in the global race to the bottom to access Global North markets and production networks controlled by increasingly concentrated oligopolies.

Among the manifold proposals for a Global South–led, twenty-first century NIEO, some are particularly salient for a pro-working-class, pro-equity green industrial transformation:[70]

(Green) production clubs

Production clubs—consortia, joint ventures, and other associations to coordinate production—offer countries an opportunity to join forces to create more competitive industries.

Production clubs—consortia, joint ventures, and other associations to coordinate production—offer countries an opportunity to join forces to create more competitive industries. They have long been a common feature of Global North economies; European countries, for example, engage in the coordinated production of Airbus planes through a consortium—a collaboration among European companies—itself a direct response to a period of consolidation in the aerospace industry that threatened to leave Boeing a complete monopoly in certain market segments.[71] More recently, the Biden administration pursued a production club with Finland and Canada to make cutting-edge ice breakers and thereby dominate new trade routes and mineral deposits as the Arctic melts.[72]

Global South countries can use production clubs similarly to foster new productive capabilities including in emerging sectors like renewable energy technologies, electric buses and trains, and battery recycling as well as to develop much-needed sustainable production methods in already established industries (e.g., steel, building materials, minerals prospecting, extraction, and processing). Cooperative production networks can create shared value equitably while advancing a green transformation and preventing the

[70] For a longer list of recent proposals, see Progressive International, "Program of Action."

[71] Keith Hayward, "Airbus: Twenty Years of European Collaboration," *International Affairs (Royal Institute of International Affairs 1944-)* 64, no. 1 (1987): 12–13.

[72] Tracy Alloway and Joe Weisenthal, hosts, Odd Lots, podcast, produced by Bloomberg, "How the White House Thinks about Economic Security," August 14, 2024, https://www.bloomberg.com/news/audio/2024-08-14/odd-lots-how-the-us-thinks-about-economic-security-podcast; US Department of Homeland Security, "Memorandum of Understanding among the Government of Canada, the Government of the Republic of Finland, and the Government of the United States of America Regarding a Trilateral Framework for the Production of Arctic and Polar Icebreakers and other Capabilities," November 13, 2024, https://www.dhs.gov/publication/mou-among-government-canada-government-republic-finland-and-government-united-states.

deleterious race to the bottom that has heretofore characterized Global South GIP.

Export clubs

Similarly, countries that produce the same types of commodities for the global market can form export clubs (along the lines of OPEC) to pool market power. This enables cooperating parties to counterbalance the oligopsony power from commodity purchasers and capture more value from global trade. This kind of cooperation would be especially impactful in the context of increased production of renewable energy technologies and the consequent rising demand for mineral inputs.[73]

Pooled investments for green industrialization

Lack of finance and the cost of capital are widely acknowledged to be key obstacles to investments that ameliorate the environmental impact of productive processes. One option for navigating these constraints is the pooling of scarce resources through "investment clubs," by dint of which Global South countries can secure financing to make more ambitious, impactful investments in green transformation—including in "green production clubs" for sustainable food, renewable energy technologies, and other essentials. For example, coordination among Latin America and the Caribbean's 76 regional, national, and subnational development banks could allow for joint financing of green industrialization projects.

(Green) procurement clubs and standards

Most countries spend at least 10 percent of their gross domestic product on public procurement, which encompasses a diversity of products, from steel and cement to buses, food, textiles, and furniture. Currently, many of these products are imported, expensive, and made using highly polluting and unsustainable methods. Procurement clubs—the pooling of purchasing power among countries—can help address those challenges and more.

[73] Thea Riofrancos, "The 'Critical Minerals' Rush Could End in a Resource War," *Financial Times*, March 12, 2025, https://www.ft.com/content/b3709429-a99b-4105-afa5-001d08a3fd80.

Most countries spend at least 10 percent of their gross domestic product on public procurement, which encompasses a diversity of products, from steel and cement to buses, food, textiles, and furniture.

Procurement clubs, already growing in relevance (see below), allow countries to pool their individual market power and obtain better prices and concessions from sellers. By using common environmental standards for goods, they can accelerate green transformation across a range of sectors, and, by the same token, they can coordinate domestic content standards to encourage the development of new, green industrial capabilities. Procurement clubs have been successfully implemented in the Global South and are growing in popularity in the Global North.[74]

Wealthy countries regularly use local content requirements to foster and sustain domestic productive capabilities (see, for example, Buy American, Buy America/Build America, and Jones Act requirements in the United States). Similarly, by using and coordinating local content requirements for public procurement and investment, Global South countries can catalyze industrialization while creating demand for products from their own "green production clubs." Local content and environmental standards in procurement clubs can also be combined with common labor standards to prevent a race to the bottom.

(Green) buffer stocks

The procurement logic can also be extended to "buffer stocks": the stockpiling and supply management of strategic products.[75] Buffer stocks not only allow for smart macroeconomic management that stabilizes prices and ensures access to essential goods like food but can also—with the right ecological procurement standards—generate massive demand for sustainable products, stimulating a green transformation in the productive sphere (e.g., agro-ecological production at scale).[76]

[74] For example, the Eastern Caribbean Drug Service (ECDS), which provides a pooled procurement service to nine ministries of health in the small island nations of the Caribbean, succeeded in cutting unit costs for pharmaceuticals by over 50 percent during its first procurement cycle. See Maggie Huff-Rousselle and Francis Burnett, "Cost Containment through Pharmaceutical Procurement: A Caribbean Case Study," The International Journal of Health Planning and Management 11, no. 2 (1996): 135–157, https://pubmed.ncbi.nlm.nih.gov/10172681/.

[75] Isabella M. Weber, Jayati Ghosh, and Sudeep Jain, "Building a Buffer against Food-Price Shocks," *Project Syndicate*, October 7, 2024, https://www.project-syndicate.org/commentary/g20-brazil-south-africa-must-help-protect-developing-countries-against-food-inflation-by-isabella-m-weber-et-al-2024-10.

[76] Weber, Ghosh, and Jain, "Building a Buffer Against Food-Price Shocks."

The buffer stocks mechanism is also being actively explored in extractive sectors. In the European Union, Mario Draghi, former president of the European Central Bank, has called on European countries to leverage their collective market power to "strengthen Europe's position at the procurement stage." His plan involves "aggregating demand for the joint purchasing of critical minerals (following the model used in South Korea and Japan) and coordinating the negotiation of joint purchases with producer countries." He argues this "would also help lower 'insurance costs' for Member States by managing future strategic stockpiles at the EU level, going beyond the soft request for national stockpiles."[77] In the United States, Brian Deese, Biden's former Director of the National Economic Council, made similar calls in 2024.[78]

As Global North countries embrace collective action to exercise monopsony power, it has become increasingly important for geopolitically weaker countries of the Global South to do the same.

[77] Mario Draghi, "The Draghi Report: A Competitiveness Strategy for Europe (Part A)," European Commission, September 9, 2024, https://commission.europa.eu/topics/eu-competitiveness/draghi-report_en#paragraph_47059.

[78] Brian Deese, "The Case for a Clean Energy Marshall Plan," *Foreign Affairs*, August 20, 2024, https://www.foreignaffairs.com/united-states/case-clean-energy-marshall-plan-deese.

Conclusion

In this primer, we have presented a vision of what transformative green industrial policies would look like—and attended closely to the entrenched structures of power that stand in the way of a holistic, socio-environmentally embedded, pro-working-class agenda for tackling climate and ecological crises. We penned this analysis with an awareness of our positionality. This primer, published by a climate and political economy think tank based in the United States, was written for an audience of United States-based organizers, advocates, and progressive policymakers. These are readers who want to understand the power dynamics that fundamentally shape GIP possibilities globally. They are also political actors who seek to cultivate an internationalist orientation in their knowledge and praxis.

We have found some of the most compelling ideas about GIP among social movements, labor unions, and progressive policymakers of the Global South.

It is equally important to state clearly what this primer is not: "policy recommendations" for the US White House and Congress, or "advice" for Global South governments. Regarding the former, we write with awareness that our vision stands in stark opposition to the ideologies and interests that are currently in power at the federal level. Regarding the latter, we are conscious of not replicating a pattern in which Global North "experts" dictate to Global South governments—often with little knowledge of their societies' complexity and the major barriers that stand in the way of equitable global development, and without relevant expertise. Our framing is practically the reverse: Although we critique mainstream policies around the world, we have found some of the most compelling ideas about GIP among social movements, labor unions, and progressive policymakers of the Global South. Our goal is to share some of their expertise with readers primarily situated in the United States.

This expertise is more relevant to US readers than it might appear at first glance. **The impediments to a pro-working-class green agenda in countries around the world often reside in the corporate headquarters and elite policy spaces of the Global North. In other words, the forces stifling progressive ambitions in both North and South are the same.**

To be sure, this commonality does not mean that a country's position in the global hierarchy is irrelevant or that there is no national variation in green transition outcomes. Rather, as we have shown throughout this report, the colonial origins—and neocolonial present—of economic relations means that formerly colonized countries, i.e., the Global South, face (1) greater constraints to green development and (2) larger penalties when they deviate from the "rules" of "free" trade or private property. Those penalties come in a variety of flavors: capital flight, investor-state arbitration, punitive sanctions, or even further reduced access to credit.

At the same time, the political-economic forces that produce and maintain these constraints are the same as those that lobby against transformative efforts like a Green New Deal, pursue divide-and-conquer strategies that pit workers across borders against one another, and create and benefit from racialized class hierarchies right here in the Global North. For these reasons, an internationalist orientation to green industrial policy is not an act of charity but rather of solidarity, born of the recognition that the fates of working-class people around the world are tied together even as inequalities of race, gender, and geography divide the class against itself.

What would a political base for green internationalism in the Global North look like?

So, if the only route to "good" GIP is its internationalization, the question is: *What would a political base for green internationalism in the Global North look like?*

Our object in this report is not to offer a political strategy or a party program; both strategy and program must emerge from collective debate and action—concrete processes of coalition-building and social mobilization, informed by inevitably conjunctural analyses of political opportunities, policy tools, and economic and ecological scenarios. However, we can offer a sketch of the contours of green internationalism. **To be effective, green internationalism should be conceived as a hegemonic political project, i.e., a project that aims to achieve political power over and against competing projects such as ethnonationalism, climate denial, militarism, and status-quo-preserving climate policies.** Such a project will entail a coalition of political forces: workers and labor unions; climate, environmental, and economic justice movements; heterodox economists and various technical specialists; and unabashedly

progressive policymakers. It will also require a theory of power that details the conditions under which such forces could access, contest, and occupy positions of state decision-making, and do so without losing their vital connection to the organized bases that are the lifeblood of their leverage.

To be activated in practice, such a theory of power involves granular analysis of the political terrain. Which labor leaders—as well as rank-and-file members—are closer to embracing green internationalism, and which will be harder to convince? Which congressional districts could support viable electoral campaigns for candidates willing to articulate this vision? What kinds of technical expertise does such a vision require, and which communities of experts are ready to join the cause? Which climate and environmental groups already understand the urgency of internationalism as part and parcel of a green agenda that is pro–working class and pro-development, and which will require pressure or persuasion? These are just some of the questions that we urge organizers and analysts to ask and be prepared to answer in their bid for political power.

That bid must come soon. In 2024, temperatures breached 1.5 degrees Celsius above the preindustrial average, making it the hottest year on record. And as the climate warms, the biodiversity crisis worsens (other contributors include resource extraction and large-scale industrial agriculture).[79]

Despite the urgency, it is a challenging moment to contemplate the possibility of green internationalism. **At present, the US government, as the leader of a "reactionary international" comprising right-wing governments around the world, is supercharging a directly antagonistic political program, one we might call "fossil-fueled ethnonationalism."**[80] But, by that very same token, many in the United States are getting a crash course in the devastating and violent consequences of a government that rejects global cooperation, doubles down on "energy dominance" while making

[79] Phoebe Weston, "Biodiversity Loss in All Species and Every Ecosystem Linked to Humans – Report," *The Guardian*, March 26, 2025, https://www.theguardian.com/environment/2025/mar/26/human-link-biodiversity-loss-species-ecosystems-climate-pollution-eawag-study-nature-aoe.

[80] "The Reactionary International," Reactionary International, accessed August 27, 2025, https://reactionary.international.

energy and other essentials more expensive for working class households, dismantles climate and environmental protections, and seeks to destroy the modicum of green transformation that has been achieved to this point. It is clearer than ever that a climate policy that neglects broader social, economic, and ecological flourishing and sees the world through the zero-sum lens of national dominance and submission is inadequate to the crises—and transformative possibilities—of the twenty-first century.

Appendix

Table A1. **Industrial policy tools restricted in World Trade Organization rules and WTO+ trade and investment agreements**[81]

Industrial policy tool	Restrictions in WTO and other trade and investment agreements
Procurement policy, such as preferential treatment of domestic firms or of foreign providers willing to transfer technology or incorporate rising levels of local content	The WTO Agreement on Government Procurement restricts these measures, but most developing countries are not signatories. However, many "WTO plus" bilateral and multilateral trade and investment agreements also restrict these procurement policy measures (e.g., the USMCA and EU-EPAs categorically prohibit them).
Infant industry protections, such as tariffs, quotas, and market set-asides for domestic producers	WTO member countries are all required to implement an upper limit on at least some of their tariffs. In the Doha Round of Non-Agricultural Market Access negotiations, industrialized countries pushed to bind and slash all unbound tariffs. The General Agreement on Tariffs and Trade (GATT), Art. XVIII, allows developing countries with low standards of living to temporarily raise tariffs to promote the establishment of a particular industry, but this requires difficult negotiations, approval of WTO members, and compensation through other tariff reductions. Furthermore, the time frame allowed (8 years) is very short relative to historically effective time frames for infant-industry protections.[82] For example, the automotive sector in Japan and Korea required decades of loss-making public investments before the national automakers succeeded in the global export market.[83]
Subsidies for key industrial sectors to promote high-value-added industries and exports	The WTO's Agreement on Subsidies and Countervailing Measures (SCM) considers subsidies trade-distorting measures and prohibits any sector-specific subsidies as well as subsidies for export promotion and for enforcing the use of local content in manufacturing. It also prohibits *indirect* subsidies through intra-private sector transfers facilitated by government regulation. In practice, however, subsidies can be used until they are challenged or countervailed. Subsidies for R&D, regional balances, and environmentally friendly

[81] Adapted from Estevez, "Multi-Solving, Trade-Offs, and Conditionalities in Industrial Policy"; Andreoni, Chang, and Estevez, "New Global Rules"; and Ha-Joon Chang, Jostein Løhr Hauge, and Muhammad Irfan, "Transformative Industrial Policy for Africa," UN Economic Commission for Africa, April 2016, https://archive.uneca.org/sites/default/files/PublicationFiles/tipa-full_report_en_web.pdf.

[82] Ha-Joon Chang, *Globalisation, Economic Development, and the Role of the State* (Zed Books, 2002).

[83] The Japanese and Korean auto industries required decades of protection, as did Finland's Nokia (Andreoni, Chang, and Estevez, "New Global Rules"). The Japanese auto industry was established in the 1930s and became competitive in the 1970s (Ha-Joon Chang, *Bad Samaritans: The Guilty Secrets of Rich Nations and the Threat to Global Prosperity* (Random House Business, 2007)).

	technologies are 'actionable' but have seldom been disputed, in part because developed countries often use them. Least Developed Countries are permitted to use export subsidies under certain conditions but are not exempted from countervailing measures from trading partners.
Creation of state-owned enterprises (SOEs) to kick-start new industries	The use of SOEs is not directly affected by WTO agreements. However, tariff cuts in the GATT and market-access and national-treatment requirements in the General Agreement on the Trade of Services (GATS) – Mode 3 (commercial presence) can be fatal for SOEs. That undermines the ability of states to use SOEs to bolster local industry (e.g., by buying goods or services from domestic producers) or supplying services to those industries at a subsidized rate)
Capital controls and capital outflow taxes to prevent capital flight and encourage savings to remain in the country, thereby facilitating productive investments (including investments in R&D)	There are restrictions to capital controls under GATS and the Trade-Related Investment Measures Agreement (TRIMS); however, violations of the rules can only be challenged in a dispute if a member country initiates state-state arbitration. WTO+ agreements are much more restrictive. US Bilateral Investment Treaties (BITs), for example, require that US firms be allowed to freely transfer payments in and out of host countries without delay.
Performance requirements, such as requirements that foreign investors incorporate local content/workers or engage in joint ventures and technology transfer	The TRIMS constrains local content requirements but not conditions for joint venture and transfer of technology. The activities covered by the GATS – Mode 3 (services delivered through commercial presence) are subject to fewer restrictions than those covered by the TRIMS. WTO+ agreements increase restrictions on performance requirements (e.g., US BITs strictly prohibit all performance requirements).

Table A2. **The Industrial Policy Toolbox** [84]

This table outlines a range of commonly used industrial policy and planning tools

CARROTS *Policies that support desired productive activities and practices*	**1. Public investments in strategic industries and infrastructure through:** a. **Grants** b. **Loans** (preferential loans, forgivable loans, and loan guarantees) c. **Public banks** to make strategic loans and coordinate investment d. **Public enterprises** to produce strategic necessities better suited to public-sector management e. **Public equity stakes** in private/worker-owned enterprises

[84] Adapted from Estevez, "Multi-Solving, Trade-Offs, and Conditionalities in Industrial Policy."

f. **Public venture capital** with fair risk and return sharing
g. **Public-private partnerships** with private/worker-owned companies
h. **Tax credits/direct pay** for producers and consumers
i. **Targeted government procurement**, e.g., that uses procurement standards that give preference to/increase demand for sustainable products, incorporation of local content, and/or fair labor practices
j. **Advance market commitments and strategic stockpiling/buffer stocks of critical goods**, such as food[85]
k. **Targeted private procurement for publicly supported projects** with stringent requirements for recipients, including preferences for sustainable products, incorporation of local content, and/or fair labor practices
l. **Investments in human capital and workforce development** supportive of investments in target industries (education, training, apprenticeships, etc.)
m. **Investments in innovation** (research, development, deployment, and demonstration)

Note: *These "carrots" can also come with "sticks" attached (in the form of conditionalities).*[86]

STICKS

Policies that curb undesired productive activities and practices

1. **Taxation** of undesirable productive activities and practices
2. **Performance standards for producers** at the industry or product level, e.g., pollution caps and reduction targets in heavy industry, agriculture, energy, etc.; price regulation; and standards for transparency/technology adoption
3. **Trade and investment regulations**, e.g., tariffs, carbon border adjustments, and performance requirements (such as technology transfer) for foreign investors
4. **Financial sector regulation**, such as differentiated interest rates to increase the costs of borrowing for polluting activities/decrease the costs of borrowing for sustainable activities[87]
5. **Labor regulations**, such as a minimum wage, health and safety protections, and protections for workers' right to organize
6. **Corporate governance regulation** to promote more equitable

[85] Isabella M. Weber et al., "Buffer Stocks Against Inflation," Heinrich Böll Foundation/Rosa Luxemburg Foundation/TMG Research, June 2024, https://www.boell.de/en/2024/06/18/buffer-stocks-against-inflation.

[86] Estevez, "Multi-Solving, Trade-Offs, and Conditionalities in Industrial Policy"

[87] Chiara Colesanti Senni, Maria Sole Pagliari, and Jens van 't Klooster, "The CO2 Content of the TLTRO III Scheme and Its Greening," Grantham Research Institute on Climate Change and the Environment and the Centre for Climate Change Economics and Policy, Working Paper No. 422, May 2023, https://www.lse.ac.uk/granthaminstitute/publication/the-co2-content-of-the-tltro-iii-scheme-and-its-greening/.

	power-sharing, e.g., through workers representation, and accountability 7. **Antitrust regulation** to prevent/discipline concentrated economic power 8. **Nationalization, acquisition of public equity stakes**, **and public management of critical industries** currently being mismanaged by the private sector 9. **Enforcement and litigation**, e.g., to ensure compliance with pollution standards
ENABLING INSTITUTIONS	1. **Planning bodies:** Institutions that fulfill industrial strategy functions, e.g., prospective research; vision-building; mission-setting; sectoral, geographic, and socioeconomic targeting of investments; and public and stakeholder engagement, evaluation, oversight, and accountability 2. **Coordination bodies** to ensure coherence among different agencies and levels of government