

Parameters for cooperation to foster green industrialisation: Reflections for a G20 Pledge on green industrialisation and development

May 2025





Acknowledgements

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Green industrialisation and participating in new green global value chains add another layer of complexity to an already complicated policy area for African countries. This is within the context of financial and capacity constraints that impede investment. The escalating gap between the financial needs of developing countries, estimated at USD 5.8–5.9 trillion for the pre-2030 period, and the support provided for implementing their Nationally Determined Contribution's is worrying. Notably, the adaptation finance needs of developing countries are projected to reach USD 215–387 billion annually until 2030, with an additional requirement of USD 4.3 trillion per year for clean energy until 2030, increasing to USD 5 trillion annually until 2050 for achieving Net Zero emissions by 2050 (UNIDO).

Particularly, the multilateral trade and investment architecture has not delivered an equitable framework for industrial development and shared prosperity. It is also worth noting that Africa finds itself in a different industrial, economic and political climate. This results in varying priorities and definitions of what green industrialisation could and should mean. For African countries, industrialisation is paramount to ensure both decent and well remunerated jobs for a rapidly increasing workforce and to ensure that Africa can capture more value in the rapidly evolving global value chains, with a focus on value addition and transitioning from raw material trade. Green industrialisation is even more paramount for Africa in the context of changing global demands, changing standards in key export markets and potential of the continent to produce greener.

There is an explicit recognition of the need to link the continent's industrialisation agenda to global climate concerns. However, the focus of most national and regional industrial policies has been to promote economic transformation irrespective of the energy source or associated Green House Gas (GHG) emissions. Inequality and poverty remain key development challenges in Africa. This raises the need for a balance between access to energy, green transition and inclusive economic development.

For the high-income countries, re-industrialisation is a key objective in their current policies to secure access to green and affordable energy, position in global value chains and job creation in a race for competitiveness among themselves.

Therefore, greening this re-industrialisation pathway and accessing green energies for industry is crucial for maintaining or improving industrial competitiveness, decarbonisation and meeting climate objectives.

Notably, differences and convergences between the low- and high-income countries exist. However, as is the case in any international partnerships, maximising areas of convergence over areas of divergence is cardinal to avoid a pure zero-sum game.

This paper analyses the divergences and convergencies in green industrialisation between Africa and the high-income countries. Based on the areas of convergence, recommendations are then presented aimed at establishing a common agenda for the G20 to advocate regarding parameters for cooperation and partnerships to foster green industrialisation and development.

Perspectives on green industrialisation around the world

According to UNIDO (2011), green Industrialisation refers to the process of transforming industrial production and economic growth into a more sustainable and environmentally friendly process. It involves policies, improved production processes, and resource-efficient productivity. The goal is to achieve economic growth while also addressing social and environmental concerns. Broadly, green industrialisation falls under sustainable industrial policies which are key in altering the production matrices of developing countries by fostering productive capacity, supporting the development of new economic sectors while reducing GHG emissions.

Recently, there has been a pointed global surge in sustainable industrial policy, led by the G20 countries. Notably, this can catalyse economic growth and promote greener, more inclusive and resilient patterns (Juhász, Lane and Rodrik, 2023). However, one notable feature of these new industrial policies is that governments across the G20 and beyond are increasingly using them to respond to a range of motivations, including driving competitiveness gains hinged on green transitions, reducing dependence on foreign sources of supply (e.g semi-conductor inputs), digitalisation, the quality of jobs as well as geopolitical imperatives.



This new approach targets the structural transformation of economies to pursue wider sustainability goals that go beyond innovation, productivity and growth (Mazzucato and Rodrik,) 2023.

For instance, following approval of the European Green Deal in June 2021, the European Union (EU) introduced legally binding climate targets to reduce net GHG emissions by at least 55% by 2030 in its Fit for 55 package and adopted its Green Deal Industrial Plan. This has since been revised to become Europe's Clean Industrial Deal (European Commission, 2025). The Clean Industrial deal has been crafted within the context of Europe grappling with rising geopolitical tensions, slow economic growth and technological competition. The document clearly states that in this new era, competitiveness and decarbonisation strategy is also a security imperative. The EU has committed to accelerating decarbonisation, re-industrialisation and innovation, all at the same time and across the entire continent, also reinforcing Europe's resilience.

To foster green industrialisation, the clean industrialisation deal identifies the cost of energy as a major impediment that must be lowered. Critical raw materials have also been identified as an important input in the green industrialisation process, arising from the EU's dependence on a limited number of third countries. The implementation of the critical raw materials act has therefore been prioritised to ensure diversification of supplies across the entire value chain. The EU has also identified the circular economy as a key element of its green industrialisation process.

In the United States of America (USA), the re-election of Donald Trump has resulted in scaling down of commitments towards the climate change agenda. However, in 2022, the USA enacted the Inflation Reduction Act (IRA)[4]. The IRA aims to increase US industrial productivity, innovation, and economic competitiveness by expanding federal income tax credits related to energy and implementing place-based policies to solve transitional concerns (Guedel, 2023[87]).

About \$369 billion is set aside in the Act to expand local green industries and transportation infrastructure. This is drawing significant expenditures in the production of batteries and electric vehicles.

While the IRA remains vulnerable to the whims of political machinations, it is evident that a quest to reclaim global competitiveness has been a driving force of the USA's green industrialisation drive in recent years.

China, which accounts for nearly 30% of global manufacturing has been implementing a 10 year blueprint[5] aimed at bridging the technology gap with more advanced countries, by promoting Chinese manufacturers in the global market and reducing its dependency on imported technology. Specifically, the development of a renewable energy manufacturing industry has been consistently identified as a priority growth area in key Chinese industrial policy documents over the past two decades. Central to China's impressive achievements regarding green industrialisation is the role of state-level centralised industrial policy planning which has mobilised resources towards the green energy sector (Li & Du, 2025).

The Chinese green industrial policy has mainly been driven by rising concerns of environmental degradation, acute energy security concerns and the tremendous economic opportunities offered by green industrial policy to unlock new sources of growth. It was precisely the recognition of the immense economic opportunities in the green energy innovation that drove China to harness its competitive advantage in consistently adhering to industrial policy and lower-cost capital to lead the market in low-carbon industries.

The three examples highlighted reinforce the view that the motive for global green industrialisation policy and frameworks is partially driven by a desire to gain a competitive economic and geo-political edge among the world's major powers. This is also because some of these countries are faced with China's emerging dominance in clean energy, the world's major economic powers have adopted response strategies by turning to their own industrial strategies. This can have a lasting impact on the green industrialisation agenda, especially for developing countries.

African countries also seek to industrialise to drive growth, create jobs and strengthen value chains.



Therefore, a new wave of African green industrial policies is emerging such as the African Green Industrialisation Initiative (AGII). These initiatives aim to leverage Africa's mineral and renewable energy assets not just for raw exports but to break the cycle of commodity dependence and kickstart industrialisation by producing green goods and strengthening their position in clean technology value chains.

All this is happening within a highly volatile global competitive environment where the USA is acting as an agent of economic disruption; the EU is looking to contain its dependence on the USA while derisking supply chains from China. China itself is forging ahead with industrial policies aimed at staying competitively ahead of its major economic rivals.

Table 1 summarises what could be viewed as the broad geopolitical interests for the world's leading powers in terms of green industrialisation.

Bloc (Country)	Interests
China	<ul style="list-style-type: none">• Maintaining manufacturing dominance and control over global green tech
USA	<ul style="list-style-type: none">• Decoupling from China• Re-shoring manufacturing; phasing out international cooperation
Europe	<ul style="list-style-type: none">• Derisking from China, Russia and USA• Reindustrialising for critical technologies and structural autonomy
Africa	<ul style="list-style-type: none">• Leveraging mineral resources and green energy for industrialisation

Source: Adapted from Medlina, A., Dekeyser, K., and Poorva, K. (2005). Green industrialisation in an age of destruction: Africa, Europe and the global economy.

African green industrialisation ambitions are positioned within the competing priorities of global powers even though it is in the best interests of African countries not to get caught up in the rivalries among the major powers as they all remain crucial partners.

Going green presents challenges and opportunities for African industrialisation pathways (Medinilla & Byiers, 2023). However, not doing so entails risks of lock-ins to fossil fuels, sunk costs in antiquated technologies considering the world's waning demand for gas and oil, and lost chances to create new products and markets, particularly as trading partners increasingly protect their markets from embedded emissions, all of which could restrict access to African industrial goods.

Notably, many African countries are not locked into high emission pathways. Therefore, there are opportunities to leverage green technology, resources and markets to create a competitive advantage in green industrial value chains.

Key concerns with green industrialisation in the interaction between developed and African nations

Despite the obvious agreement, globally, that green industrialisation is a necessity, there are gaps in how the developed and developing countries perceive green industrialisation. Africa tends to prioritise its economic diversification and social development while the developed countries seem to emphasise reducing GHG emissions to meet their climate goals.

This can lead to a narrow “fossil vs renewables” approach rather than examining how in the current context of each country, a combination of various technologies can trigger an industrialisation pathway aligned with Sustainable Development Goals (SDGs) while avoiding lock in technologies that would be contradictory to economic resilience.

Another potential point of departure concerns value and supply chains. Generally, Africa seeks to transition from the production and export of raw materials to finished products. However, it is faced with financial and capacity challenges. On the other hand, the developed countries aim to secure and diversify access to critical raw materials (some supplied by Africa) to enhance their competitiveness. This can create a rift in how both parties approach the green industrialisation process. Due to legacy issues and the structural asymmetries in the global economic and financial system, some African countries perceive the green industrialisation agenda as centred on the needs of developed countries for energy security and critical minerals for its transition.

The cost of financing green industrialisation also creates a point of contention in the cooperation between developed and developing countries to foster green industrialisation. Depending on the initial situation of the country, the cost of financing the energy transition in African countries can be high, and access to finance for other investments necessary for an industrialisation pathway is challenging, given the debt burden in many emerging and least developed economies.



This is reinforced by the current challenges in the international financial system as well as the incipient subsidy race between the USA, China and the EU to attract industrial investments.

The increasing use of unilateral industrial and trade and investment policies by developed countries to advance a sustainability agenda has the potential to isolate developing countries.

African governments feel disadvantaged by unilateral trade-related policies and standards and point at inconsistencies with a commitment to just global transitions that respect historical responsibilities and a commitment to help Africa balance between climate and sustainable development goals. The developed countries seek to match their trade-related rules and instruments with some complementary clauses and development support measures to help mitigate detrimental effects. However, many, African governments perceive the risk for their own structural economic transformation and industrialisation pathways and question the hegemony of the ever-expanding unilateral regulations and trade-related instruments.

Despite these points of departure in how developed and developing countries may perceive green industrialisation, moving towards sustainable, diversified and resilient industrial value chains is an interest shared mutually. The developed country's pursuit to attain decarbonisation and re-industrialisation, fix energy shortages and search for customer relationship management provide an opportunity for Africa. There is an opportunity, in this moment of disruption, to strategically redraw global industrial interlinkages including Africa and to build the foundations of an alternative green industrial geography. This can create opportunities for value addition in Africa rather than reinforcing past extractive relationships.

Creating a common agenda for green industrialisation

For Africa and other developing nations, navigating green industrialisation and reaching low carbon development targets requires efforts that go beyond the national level. Rich nations ought to set an example and help emerging and least developed economies accelerate adaptation and mitigation toward more resilient, inclusive, and sustainable systems.

Green policies must be able to engage all stakeholders to make the changes more inclusive, legitimate, and long-lasting, in addition to addressing the significant financial requirements related to the climate and other SDGs agenda.

Under a G20 Framework on Inclusive Green Industrialisation and investments to promote sustainable development, the following recommendations are put forward for consideration.

- Align trade and industrial policies to maximise synergies with other SDGs: Industrial policies are also deeply linked to trade. Promoting investment in green manufacturing should avoid the adverse spillover effects on trading partners. Some G20 countries are launching strategic industrial programmes to tackle climate change but these trade policy actions are leading to trade tensions. The G20 and multilateral institutions should encourage the alignment of policies to maximise synergies with other SDGs and minimise impacts on poorer countries and people. To avoid the unintended consequences that domestic green transitions can have on trade and to ensure that every country can implement their own green and just transition, a regular dialogue framework between countries implementing border adjustment measures and developing countries would help identify and address their unintended consequences.
- Facilitate access to affordable green technology: To guarantee emerging and least developed economies have inexpensive access to low-carbon technologies, the G20 should promote a broader set of trade agreements and collaborations. For instance, ensuring that bilateral and multilateral trade agreements support transfer initiatives, pre-negotiating price and access modalities by type of country, and acknowledging the needs and concerns of LDCs are some ways to promote affordable green technology transfer globally through technical and financial cooperation. To create a strong and sustainable technological base, the G20 might investigate ways to match trade policies and intellectual property rights with emerging nations' ability to manufacture and sell their own indigenous green technologies.



The G20 should call for the initiation of a process to update the trade system to ensure affordable access to low carbon technologies and other technologies necessary for the transitions, as well as accelerating reform of the international investment agreements (IIAs) regime to expand policy space for climate action and to strengthen promotion and facilitation provisions.

- Co-ordinate action to improve flow of climate finance: The G20 should improve climate and sustainable development finance to support developing countries for green industrialisation. It should emphasize grant-based, non-debt-creating development finance and align official development assistance and private flows with national development priorities. Financing should target green industrialisation enablers like renewable energy sources and technology development. G20 members should increase pledges to Green Climate Funds and advocate for transparent resource allocation and green transitions in funding proposals.
- Commit to an inclusive standards-setting process: The G20 must advocate for the use of existing multilateral frameworks for inclusive standards-setting that promotes sustainable development while avoiding harm to less industrialised countries/developing countries. This should also include harmonisation and interoperability of unilateral systems such as emission trading schemes that are posing a negative challenge to green industrialisation prospects for developing countries.
- Support value addition: The G20 should collectively pledge an investment package to support the implementation of a green industrialisation specially value addition in developing countries. This should target the deliberate establishment of supply chains close to the upstream production hubs in Africa to create efficiencies in the production process. For instance, locating mineral value chains close to their source including for critical minerals and materials beneficiated at source. Africa, which holds 19% of the global mineral reserves needed for electric vehicles, stands to benefit from the green transition if the minerals can be processed locally.
- Prioritise green skills development and technology partnership: There should be a commitment to foster collaboration between developed countries and developing country institutions locally and regionally to nurture a skilled workforce and conducting a green skills gap audit and developing a comprehensive green skills development programme is a critical requirement for Africa.
- Enhancing African regional cooperation: A good starting point for green industrialisation in Africa is the manufacture of green goods for African markets. Africa has a huge import bill for green products. The G20 can support the production of these products that Africa needs and leverage African (regional) markets.



[1] See UNTCCC Data factsheet for Africa

[2] This is based on data from the PATSTATS (autumn 2022 edition)

[3] This is based on data from the PATSTATS (autumn 2022 edition)

[4] With a Republican-controlled White House and Congress, the future of the IRA is uncertain. Recent attempts by Republican lawmakers to partially repeal or hinder the implementation of the IRA suggest that there may be specific sections of the IRA that are particularly vulnerable under the next administration.

[5] China has dropped any reference of the contentious "Made in China 2025" slogan from official documents, but the policy to become a global tech powerhouse is still alive and kicking.

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