

A New Green Industrialization for Developing Economies

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UNCTAD session: global aspects of transitioning to a
clean energy growth model and building capacity in a
climate-constrained world.

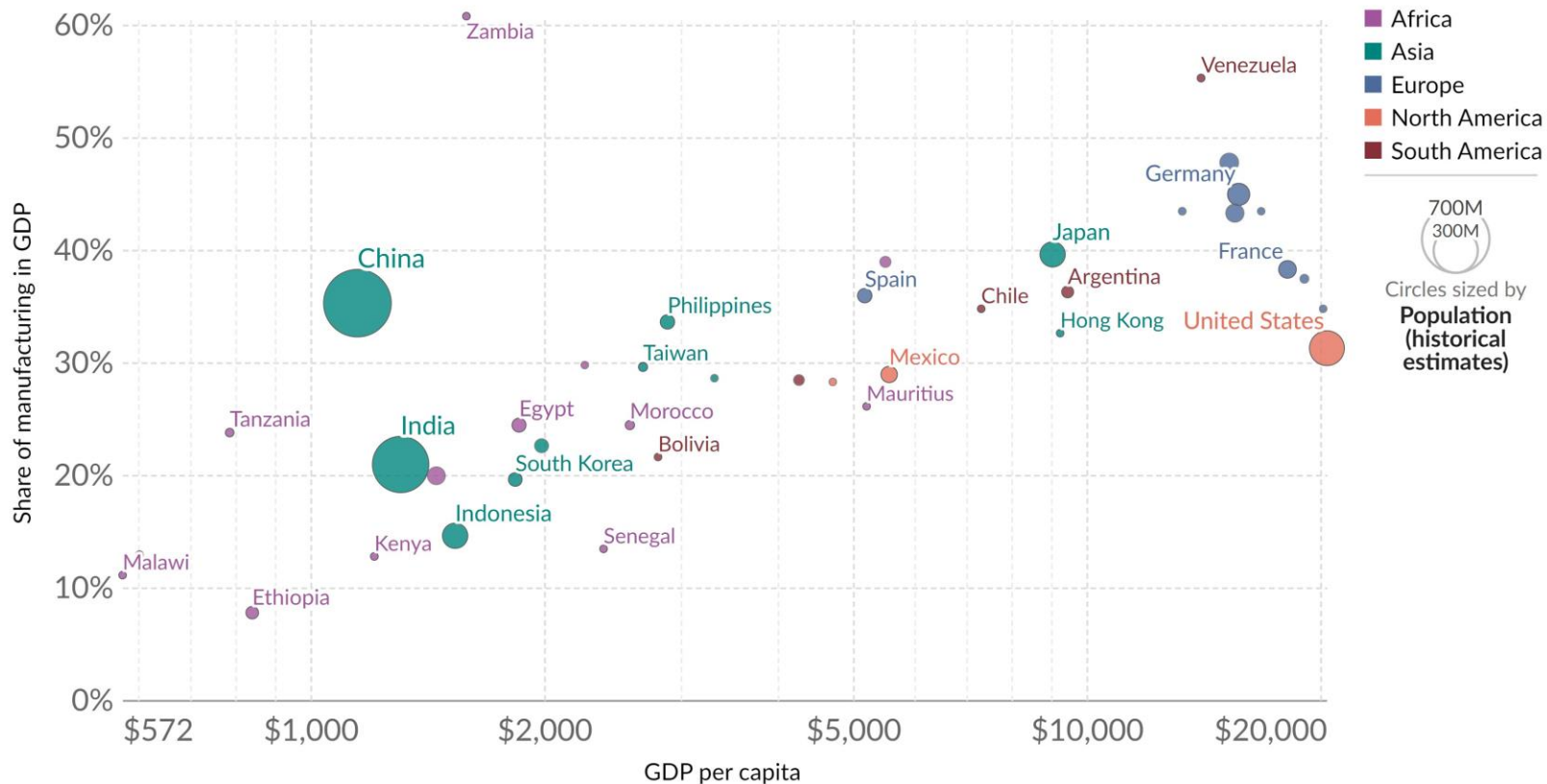
Geneva, October 30th, 2023

Why Industrialization?

- UNCTAD was created in 1964, as part of a UN effort to promote faster growth and industrialization of developing economies.
- There was clear positive correlation between industrialization and economic development then.
- Almost 60 years later, the correlation still exists, but with an inverse U-shaped format, indicating that industrialization is an important step in the path for development.
- And for many developing economies the current challenge is to re-industrialize their economies under new climate constraints in a more globally or regionally integrated economy.

GDP per head vs. share of industry in GDP, 1964

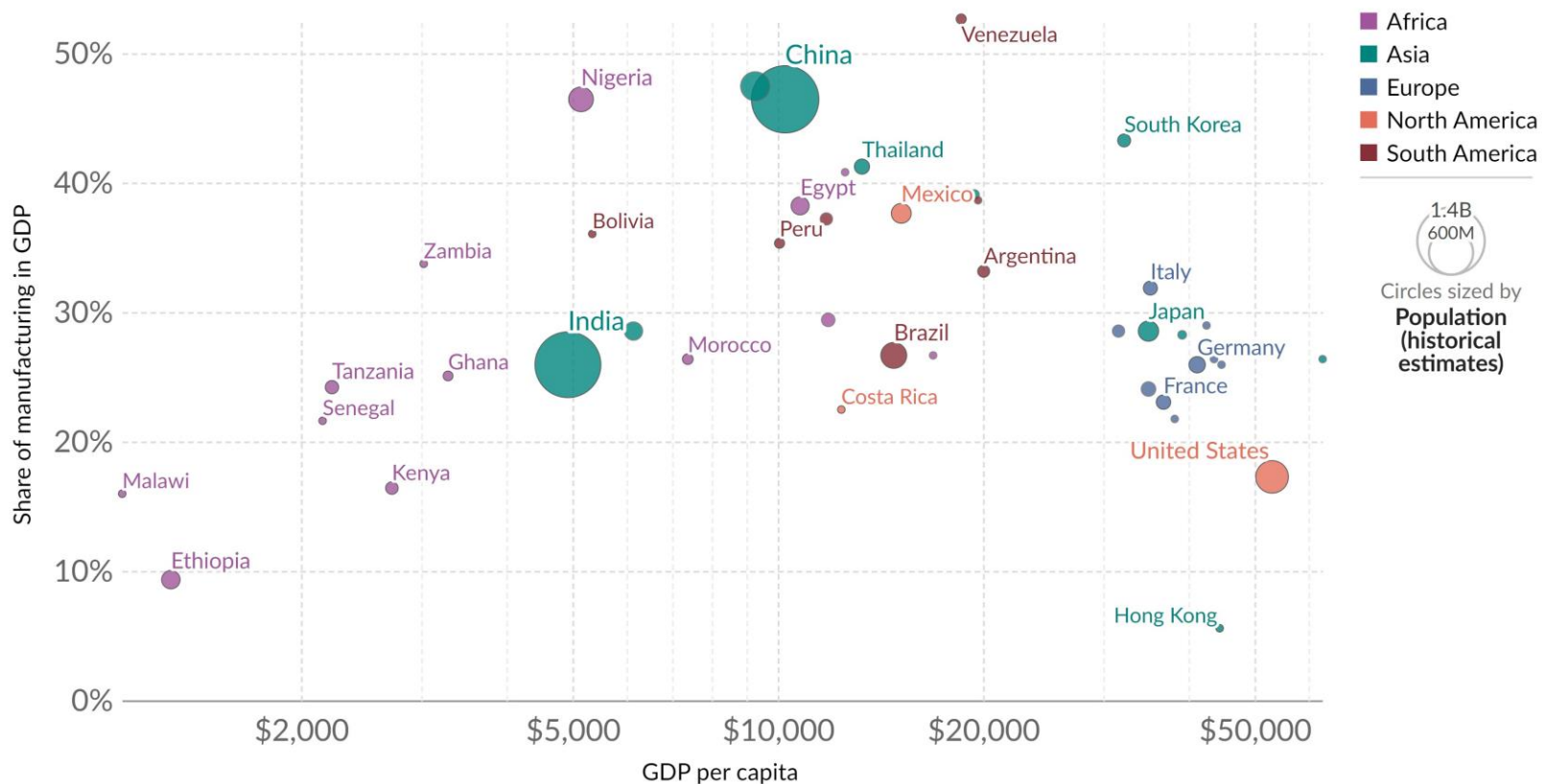
The vertical axis shows historical estimates of the share of industry in GDP (estimated at current prices). The horizontal axis shows GDP per head after adjusting for inflation and price differences across countries (figures are in 2011 international-\$).



Data source: OWID based on Herrendorf et al. (2014) and GGDC-10 (2015); Maddison Project Database 2020 (Bolt and van Zanden, 2020)
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GDP per head vs. share of industry in GDP, 2016

The vertical axis shows historical estimates of the share of industry in GDP (estimated at current prices). The horizontal axis shows GDP per head after adjusting for inflation and price differences across countries (figures are in 2011 international-\$).



Data source: OWID based on Herrendorf et al. (2014) and GGDC-10 (2015); Maddison Project Database 2020 (Bolt and van Zanden, 2020)
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Industrialization and CO2 emissions

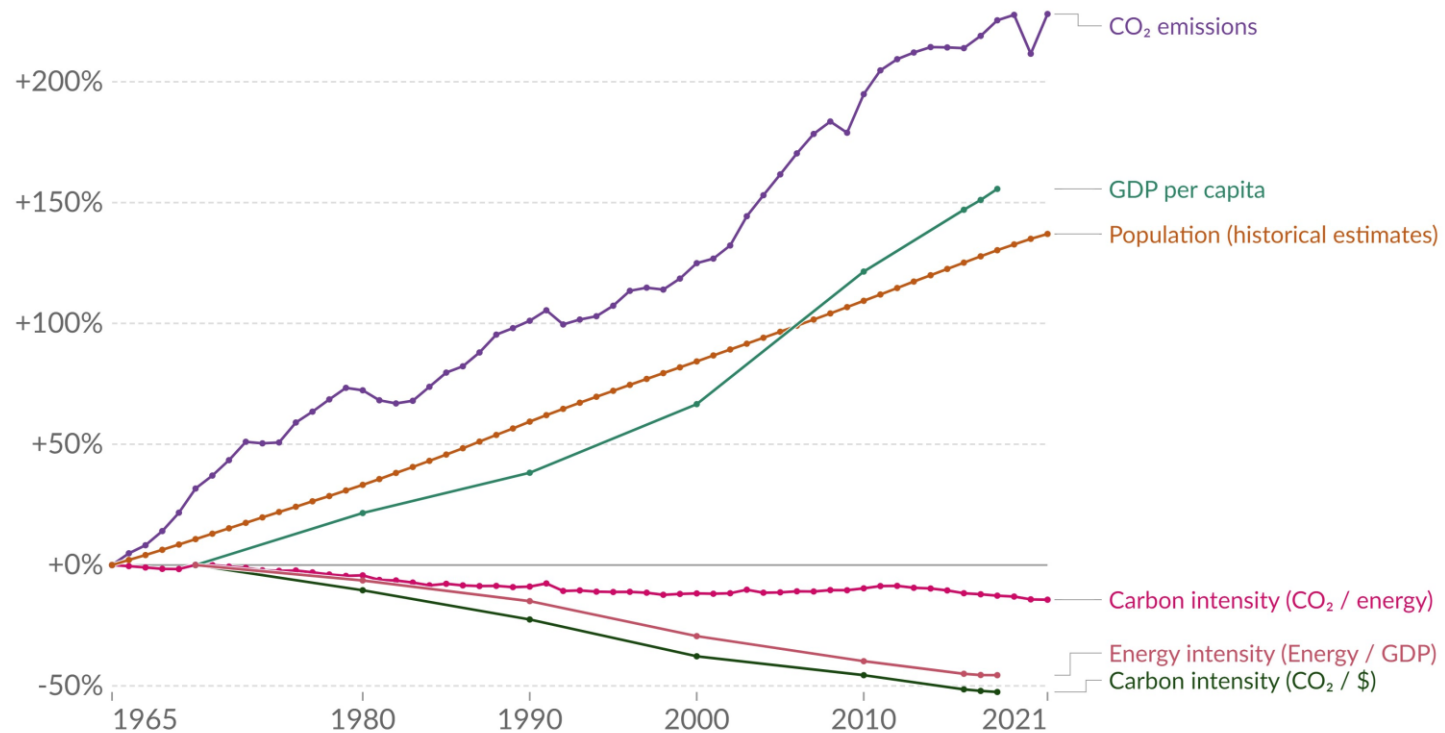
- Economic development is energy intensive
- No-growth and de-growth strategies are not viable for low and middle-income economies.
- Economists analyze emissions through the Kaya identity:

$$\mathbf{Emissions} = \left(\frac{\mathbf{Emissions}}{\mathbf{Energy\ Demand}} \right) \left(\frac{\mathbf{Energy\ demand}}{\mathbf{GDP}} \right) \left(\frac{\mathbf{GDP}}{\mathbf{pop}} \right) \mathbf{pop}$$

- A new green industrialization should reduce emissions per unit of energy (**decarbonization**) and lower energy demand per unit of output (**raise energy efficiency**).

Kaya identity: drivers of CO₂ emissions, World

Percentage change in the four parameters of the Kaya Identity, which determine total CO₂ emissions. Emissions include fossil fuel and industry emissions¹. Land use change is not included.



Data source: Global Carbon Budget; UN; Energy Institute; EIA; World Bank; Maddison Project Database

Note: GDP per capita is measured in 2011 international-\$² (PPP). This adjusts for inflation and cross-country price differences.

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1. Fossil emissions: Fossil emissions measure the quantity of carbon dioxide (CO₂) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO₂ includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

2. International dollars: International dollars are a hypothetical currency that is used to make meaningful comparisons of monetary indicators of living standards. Figures expressed in international dollars are adjusted for inflation within countries over time, and for differences in the cost of living between countries. The goal of such adjustments is to provide a unit whose purchasing power is held fixed over time and across countries, such that one international dollar can buy the same quantity and quality of goods and services no matter where or when it is spent. Read more in our article: [What are Purchasing Power Parity adjustments and why do we need them?](#)

Defining the main objectives of a New Green Industrialization (NGI)

1. **To increase and diversify industrial output per capita**, which is not the same thing as increasing the share of industry in GDP and employment.
2. With more **energy efficiency** in production and **decarbonization** of power sources.
3. In global or regional **resilient and inclusive value chains**.

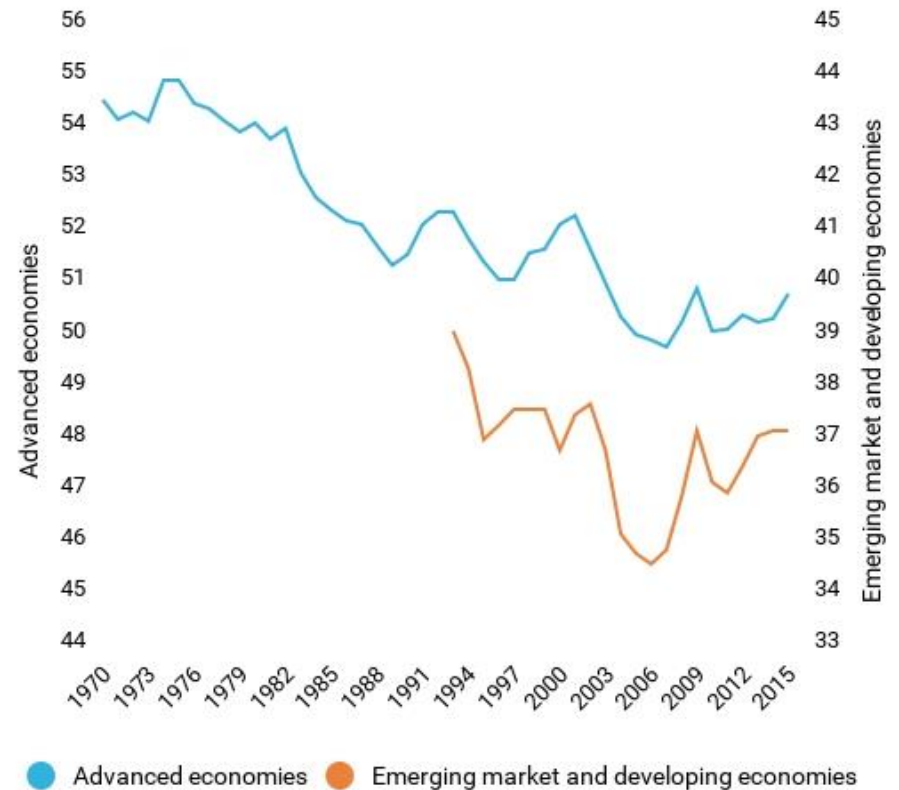
Industrialization, income distribution and financial stability

To reduce inequalities and avoid recurrent financial crises, the new green industrialization should also aim to share its productivity gains with workers and the whole population (through global progressive taxation and social safety nets)

Labor is losing out

The share of national income paid to workers has been declining in many countries.

(evolution of the labor share of income, percent)



Source: IMF, *World Economic Outlook*, April 2017.

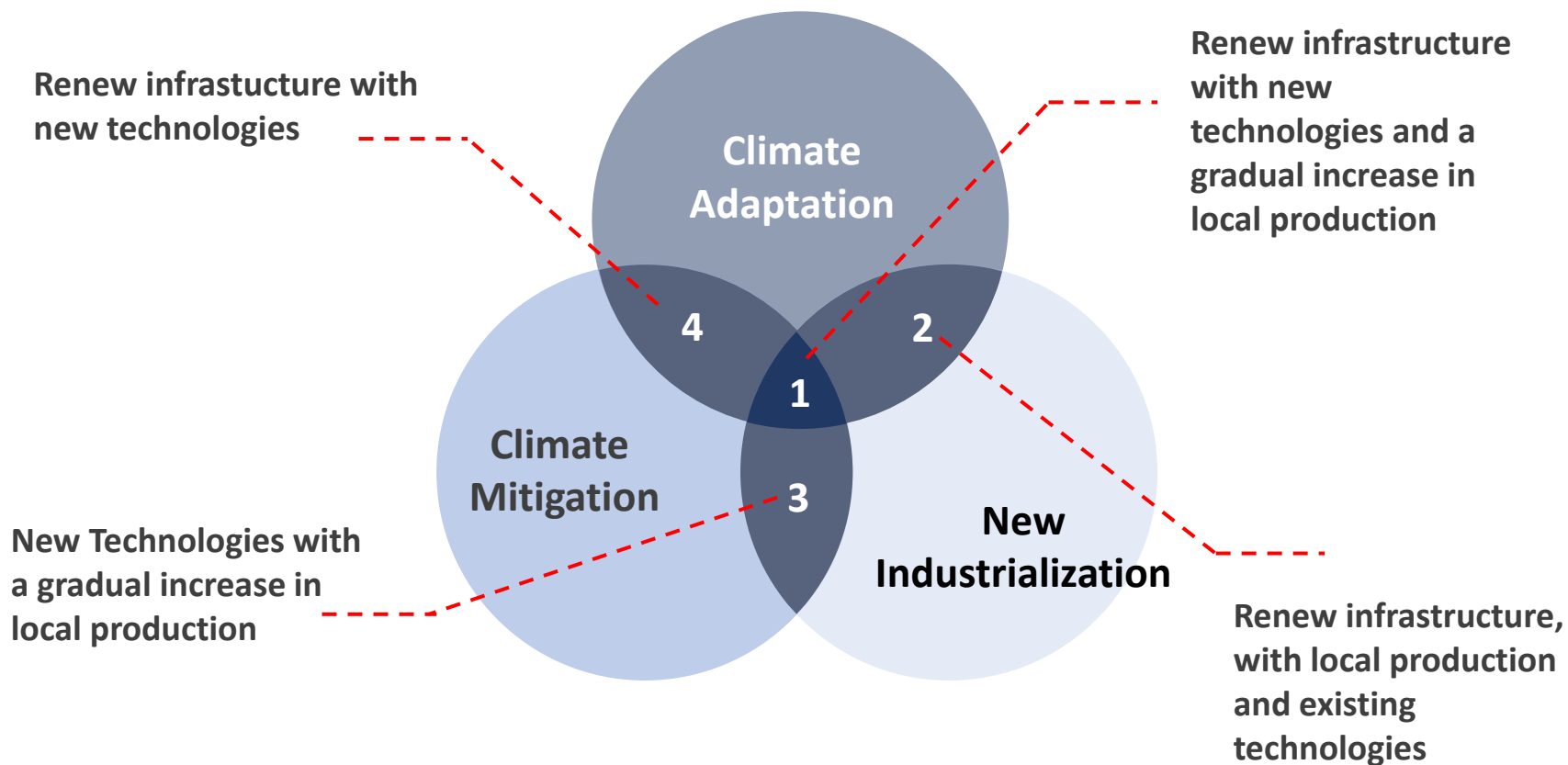


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Adaptation, Mitigation, and Industrialization

- Climate-change adaptation requires large investments in **renewing infrastructure**, creating demand for industry.
- Climate-change mitigation also opens up investment opportunities in **new technologies** to increase energy efficiency and reduce emissions.
- But adaptation and mitigation alone do not guarantee a new industrialization of developing economies.
- Adaptation and mitigation policies must come together with a **regional reallocation of industrial output** (re-shoring, near-shoring, power-shoring, etc).
- Making **regional and/or global agreements** a crucial part of any industrialization strategy.

The three challenges the New Green Sustainable Industrialization



Financial Constraints on Developing Economies

- Fiscal rules must be adapted to the need of large long-term investments in the green transition (adaptation, mitigation, and new industrialization)
- Public debt will temporarily go up to deal with the climate challenge, in a “war-economy”, but for progressive reasons.
- Temporary may mean decades.
- And foreign-exchange constraints must also be adapted to the new investment needs, with a focus on certified projects that contribute to a globally integrated green development.

Example of Policy instruments for the New Green Industrialization

- **Institutional**: market and product regulation to expedite the technological change (ex: electrification of buses and light cargo transportation in urban areas).
- **Fiscal**: tax incentives and fiscal subsidies for investments in mitigation, adaptation, and green industrialization (example: temporary tax cuts or capex and opex support transfers for investment projects).
- **Financial**: reduced interest rates and submarket warranties and hedging for certified projects (example: a climate fund funded by green bonds with low or zero FX risk to borrowers).