Transitioning to a Clean Energy Growth Model: Challenges, Opportunities and Solutions

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Multi-year Expert Meeting on Enhancing the Enabling Economic Environment at All Levels in Support of Inclusive and Sustainable Development, and the Promotion of Economic Integration and Cooperation

31st Oct. 2023, UNCTAD Geneva
The global economy and geopolitics are unsettled (UNCTAD, TDR 2023)

• The growth rate of world economy in 2022 was 3.0%. It is expected to go down to 2.4% in 2023.

• All regions (except East and Central Asia) are expected to grow at rates slower than 2022, largest drop in Europe. The EU-27 2023 growth rate is expected to be 0.4%. The forecasted growth rates of 2023 and 2024 are among the lowest in the last 4 decades (outside crises years).

• Global trade in goods and services is forecast to grow about 1 % in 2023, significantly below world economic output growth. The slowest average growth period for global trade since the end of the Second World War...

• Multi-dimensional crisis: difficulty of meeting critical needs such as food security, energy security, social protection, climate adaptation/mitigation. Inflation and debt stress, esp. in developing economies...

• High uncertainties and risks
Geo-strategic policy making, multi-polar order

- Re-thinking of the energy security, energy supply pathways…
- Re-shaping and geographical concentration of the value chains…
- Export restrictions on critical raw materials…

ADVANCED COUNTRIES
- Green and digital transition requiring rapid and drastic transformation of the economies
- (unfair) competition from China, Re-thinking state’s role, Innovation drought
- **Revival of Industrial Policy**

USA: INVESTING IN AMERICA Agenda

  - Inflation Reduction Act – IRA (August 2022)
  - Creating Helpful Incentives to Produce Semiconductors – CHIPS & Science Act (August 2022)
  - Infrastructure Investment and Jobs Act (2021)

EU: EU GREEN DEAL AGENDA – “Open Strategic Autonomy”

  - Green Deal Industrial Plan
  - Net-Zero Industry Act
CURRENT DEBATE(S), Industrial Policy Documents - EU

- “preserving rightful place in the global pecking order”
- “domestic economic development”
- “importance of investing in technological sovereignty”
- dependence on imports for new clean manufacturing technologies”
- “long term economic prosperity and sovereignty”
- “industrial transformation at home”
- “path dependency of technological innovations”... hence “need for active industrial policy”
- hence “governments active involvement”...
Geo-strategic policy making, multi-polar order

• New challenges, necessities of cooperation and opportunities for developing countries
  ✓ Developmental discourse: link b/w economic growth and structural transformation
    [recognition that the necessary de-carbonization pathways will imply transformation of energy
    and production structures of the economies, and that such transformation will force taking
    into account sectoral dependencies with respect to energy as well as other critical inputs]

  ✓ Independence / interdependence: (i) systematically reduce global imbalances in trade,
    finance etc. (ii) mutually advantageous strategy for North and South.
    [Global nature of structural transformation for climate environmental risks, risks for
    creating enclave economies, ex./ green hydrogen]
  ✓ Leading role of the state
  ✓ South-south cooperation

  re-thinking policy space, industrial policy, gaining insights from past debates, having long-term
  perspectives & extending the debate in line with current challenges, constraints and opportunities...
Disproportionate impacts of climate change for developing countries

2. Effect of a 1°C Increase in Temperature on Real per Capita Output at the Country Level, with Countries Rescaled in Proportion to Their Population

*Source: IMF (2017), World Economic Outlook, Ch. 3, Fig. 3.8*
Disproportionate capacities in adaptation and mitigation
(Debt and Mitigation and Debt in Adaptation Indices)

Towards achieving climate change and development goals

✓ **Structural Transformation**

• Greening economies as an engine of growth and structural transformation? Discourse moving away from “burden and challenge” to “take advantage of global green shift”?

• **Transformation towards clean energy sources (energy efficiency, renewable energy)**
  
  (1) energy sector as the primary cause of GHG emissions (IEA: emerging markets and developing economies will account for almost 80% of the global growth in electricity demand in future scenarios)
  
  (2) cost advantages of clean energy: strong economic maturity, investment momentum high
  
  (3) mature, available technologies (IEA definition)
  
  (4) potential for developing economies (ex. meeting diverse national energy and climate targets for Sub-Saharan Africa, 85% of new power generation plants to 2030 should be based on renewables)
  
  (5) energy-security [particularly for fuel-importing countries, extreme price volatility in energy markets]
  
  (6) SME oriented – “manufactured” technologies, basis for developing a manufacturing capacity
  
  (7) clean employment opportunities?
  
  (8) Co-benefits: linkages to other sectors of the economy
  
  (9) Ample global manufacturing capacity offers considerable upside for solar PV, albeit concentrated: China, India, Malaysia, Thailand, Korea, Cambodia and Turkiye

• Potential for rapid, affordable and clean transition in energy systems is high
Domestic Resource Capacities for Clean Energy Investments
(Pollin, 2020)

- Country Input-Output Tables (2015, OECD)
- Current Level of Domestic Content for all activities that will be important to take clean energy investments in 5 major areas...

**Ex. Solar industry investments in Brazil:**

- Computer and electronic products—35 % weight
- Construction—30 % weight
- Business sector services—18 % weight
- General machinery and equipment products—12 % weight
- Basic metals manufacturing—5 % weight
<table>
<thead>
<tr>
<th>Energy efficiency investments</th>
<th>Renewable investments</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Building retrofits</td>
</tr>
<tr>
<td>Brazil</td>
<td>95 per cent → 95 per cent</td>
</tr>
<tr>
<td>Germany</td>
<td>91 per cent → 91 per cent</td>
</tr>
<tr>
<td>Indonesia</td>
<td>91 per cent → 91 per cent</td>
</tr>
<tr>
<td>South Africa</td>
<td>86 per cent → 69 per cent</td>
</tr>
<tr>
<td>South Korea</td>
<td>89 per cent → 71 per cent</td>
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</table>

Changes in installed capacity in the electricity sector in Net-Zero Scenario w.r.t Baseline Scenario (GW)
Turkey’s Decarbonization Pathway: Net Zero in 2050, A Cost-Benefit Analysis 2020-30

- Additional Costs (Under Net Zero Scen. w.r.t Baseline Scen.)
  - Investment Cost for additional capacity installments
  - Operation and Maintenance Costs
  - Fuel Cost
Turkey’s Decarbonization Pathway: Net Zero in 2050, A Cost-Benefit Analysis 2020-30

<table>
<thead>
<tr>
<th>ELECTRICITY SECTOR</th>
<th>Costs (Billion Dolars)</th>
<th>Co₂ Emissions (Million Tons)</th>
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<tbody>
<tr>
<td>Additional Capacity and Storage Investment Cost</td>
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<td>Operation and Maintenance Cost</td>
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<td>Fuel Cost</td>
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<td>Grid Investment Cost</td>
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<tr>
<td>TOTAL ELECTRICITY – PRODUCTION AND GRID</td>
<td>+29.1</td>
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</table>
Towards achieving climate change and development goals

• Key areas that need urgent attention (IEA, WEO, 2023)

  (1) Scaling up clean energy and infrastructure investments in developing economies
      - enabling financial and fiscal policy space
      - government indebtedness
      - high cost of capital for many developing economies

  (2) Make transitions resilient, inclusive and affordable
      - large geographical concentration of critical minerals

  (3) Importance of re-distributional policies
      - fossil fuel subsidies

  (4) Find ways for cooperation
Towards achieving climate change and development goals

Financing Green Transition

- Role of Multinational Development Banks
- Establishing coalitions, such as the Intergovernmental Group of 24, to work as a bloc within the IMF and World Bank (Gallagher et. al, 2023)
- Creating a network of development finance institutions – including the Asian Infrastructure Investment Bank, the New Development Bank, the China Development Bank and more – with assets totaling $18.7 trillion (Gallagher et. al, 2023)
- Broadening agenda, Bridgetown Initiative
UNCTAD (2023)

`Aligning national and global challenges is neither straightforward nor automatic, but requires strategic planning, active policy intervention and effective multilateral cooperation.`
## De-industrialization?

<table>
<thead>
<tr>
<th>Manufacturing VA Share (Current USD, %)</th>
<th>1970</th>
<th>1980</th>
<th>1990</th>
<th>2000-7</th>
<th>2010-12</th>
<th>2013-17</th>
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Turkey: Manufacturing Share VA (%), 1970-2015