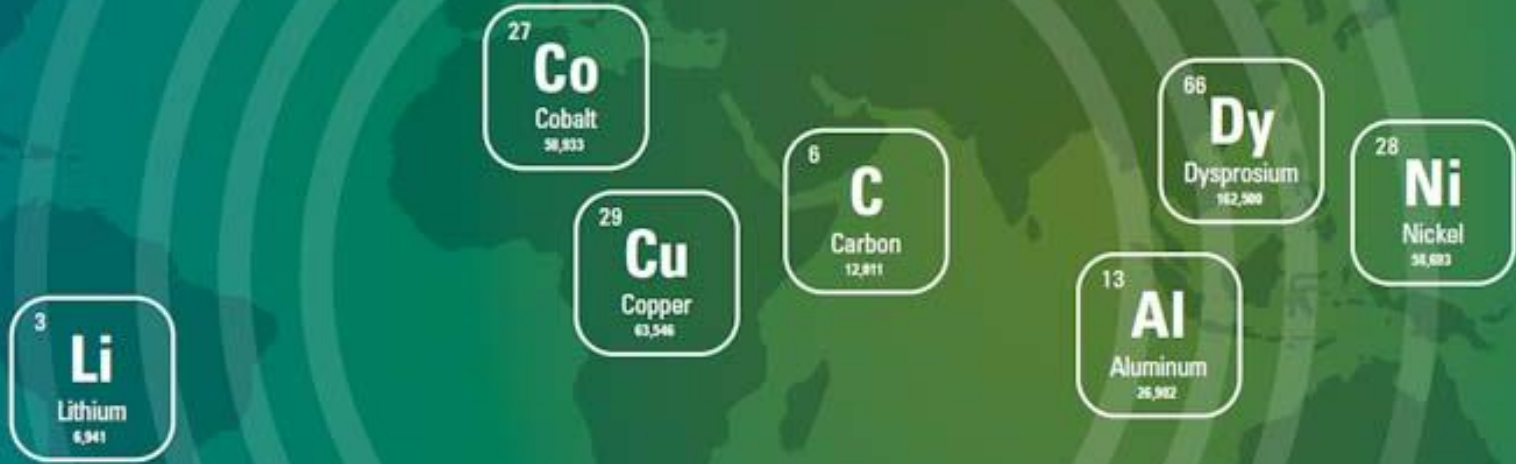


“Economic implications of the energy transition on government revenue in resource-rich countries”

Side Event to the BMZ High-Level Forum on Mineral Supply Chains



\$5bn to \$25bn additional government revenue per year



Between \$100bn and \$500bn total additional government revenues by 2040

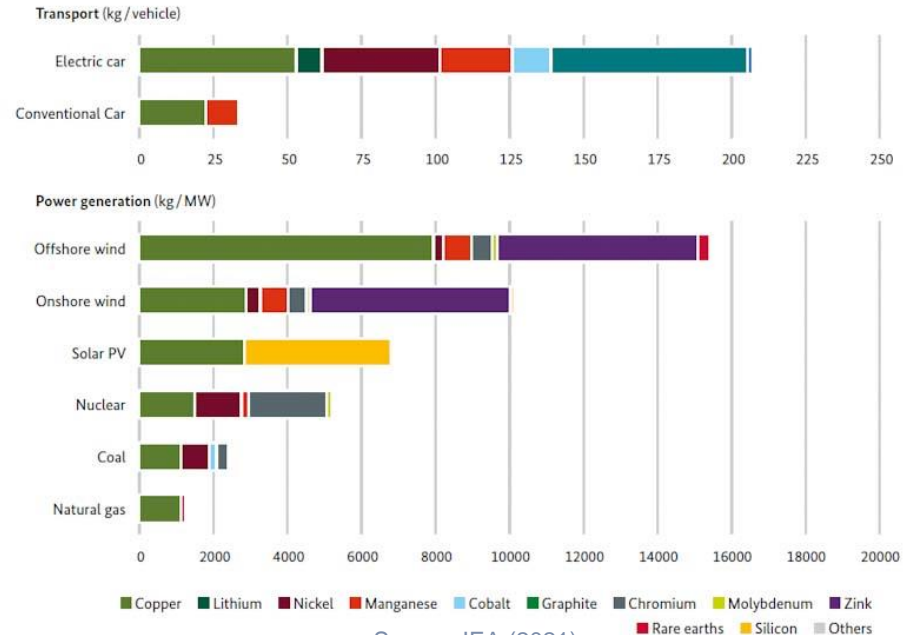
Contents

1. Demand for energy transition minerals
2. Methodology to estimate revenue potential
3. Key findings
4. Policy implications

Increase in demand for energy transition minerals

- Decarbonising the global economy and energy sector will require an unprecedented deployment of clean energy technologies in next three decades
- Clean energy technologies are more material intensive than fossil fuel-based equivalents, driving demand for 'energy transition' minerals
- Only a small fraction of the rapidly increasing demand can be met by increased recycling
- Large increase in production from primary sources will be necessary for the foreseeable future

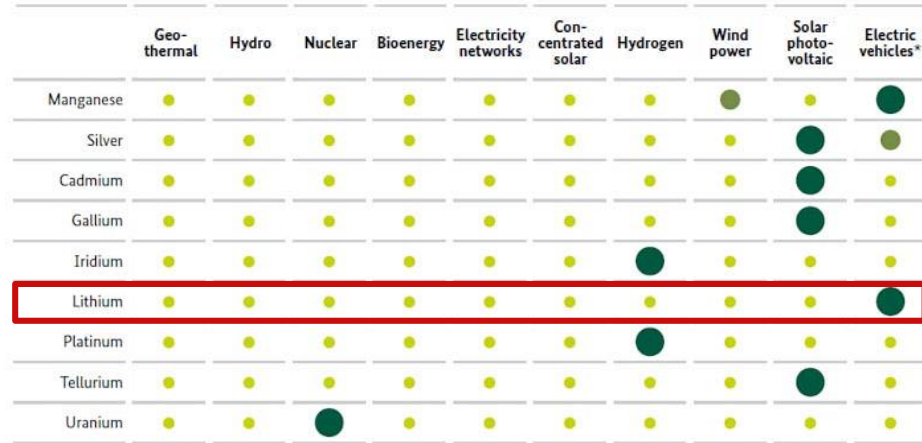
Material intensity of transport and power generation technologies



Source: IEA (2021)

Selected transition minerals cover key technologies

Materials critical for a transition to low-carbon by technology type



Low to none ← ● ● ● → High

* includes energy storage

Source: McKinsey & Company (2022).

Demand for minerals depends on path to net zero

Stated Policies Scenario (STEPS)

- Current policies announced by governments

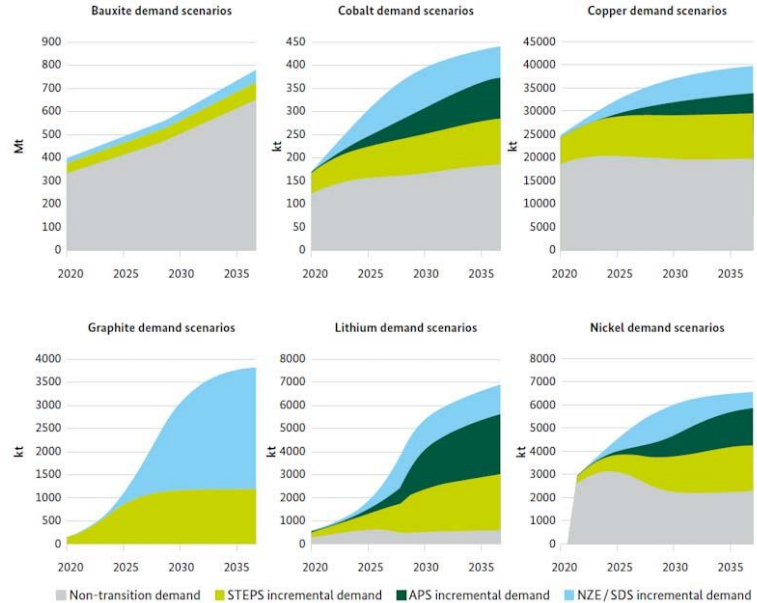
Announced Pledges Scenario (APS)

- All climate commitments made by governments met in full and on time

Net Zero Emissions by 2050 Scenario (NZE)

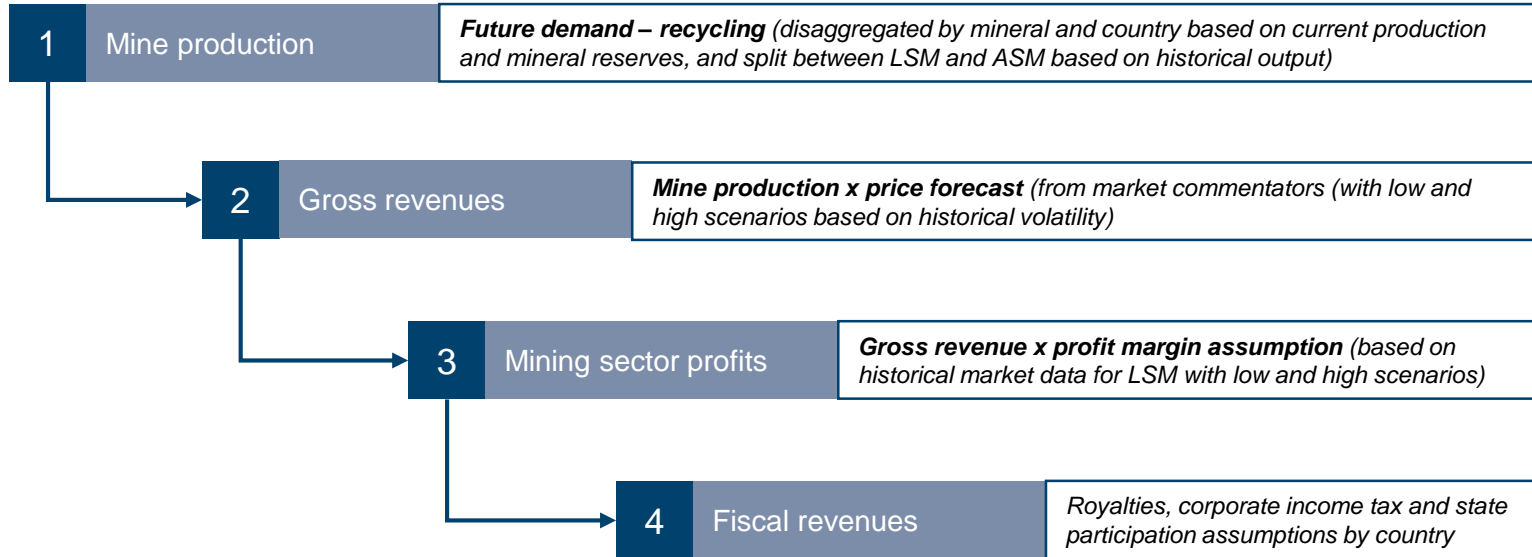
- Most ambitious pathway not relying on emissions reductions outside energy sector

Demand scenarios for selected transition minerals



Notes: Estimates of non-transition demand for graphite were unavailable.
Bauxite demand is derived from the demand for aluminium.
Source: IEA (2021), Kim (2022), Gregoir and van Acker (2022).

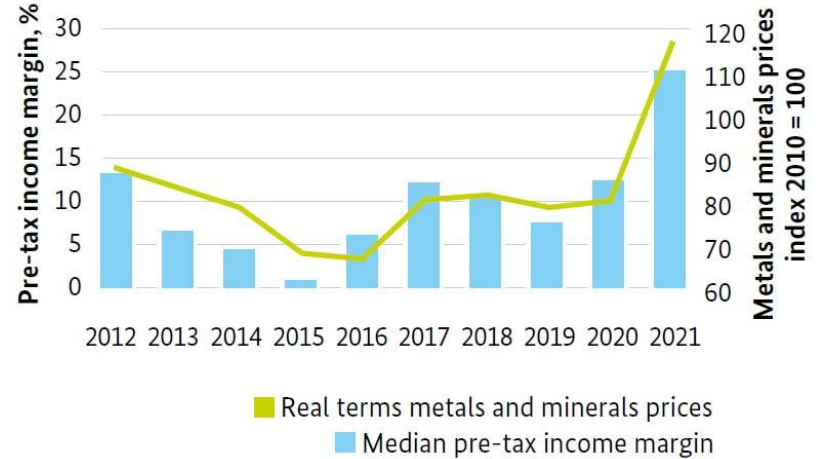
Methodology for revenue estimates



Limitations and uncertainties

1	Mineral demand
2	Mineral reserves
3	Mineral prices
4	Sector profitability
5	Fiscal regimes

Mining sector profit margins and mineral prices



Source: World Bank (2022), Finbox (2022).

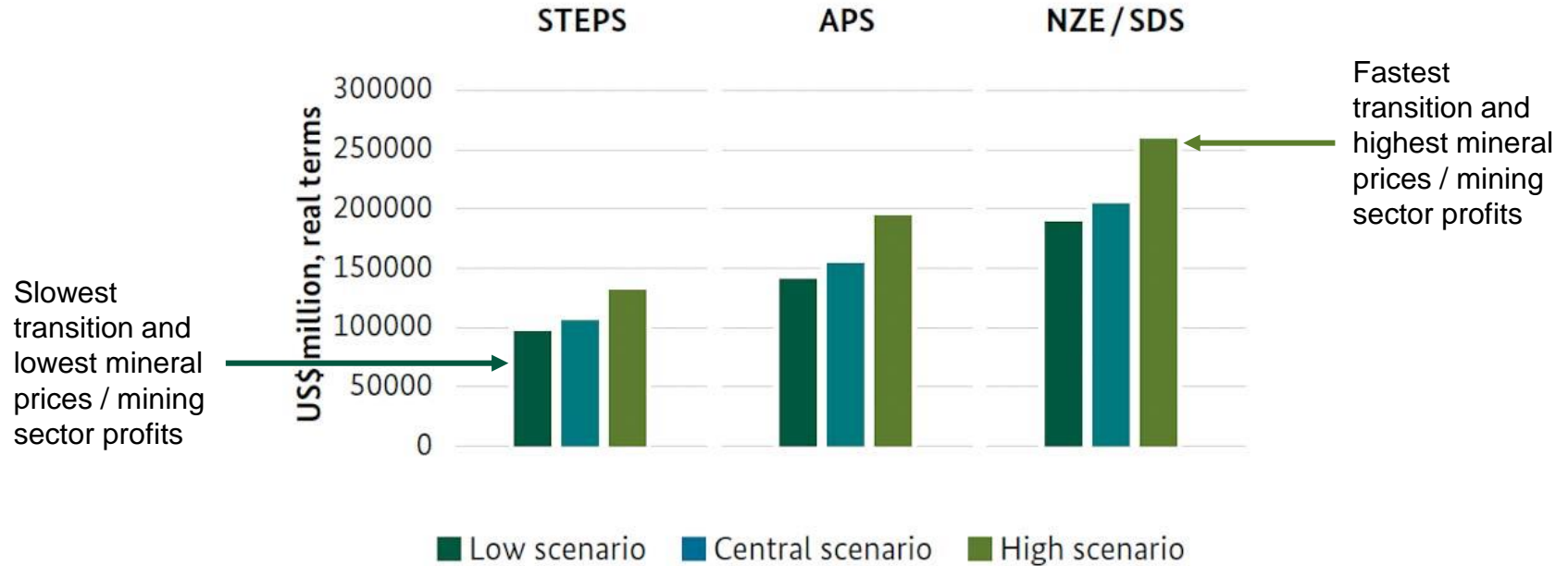
To account for this uncertainty, we modelled 9 scenarios:
3 demand scenarios x 3 price and profitability scenarios

Key findings and policy implications

Economic implications of the energy transition on government revenue in resource-rich countries

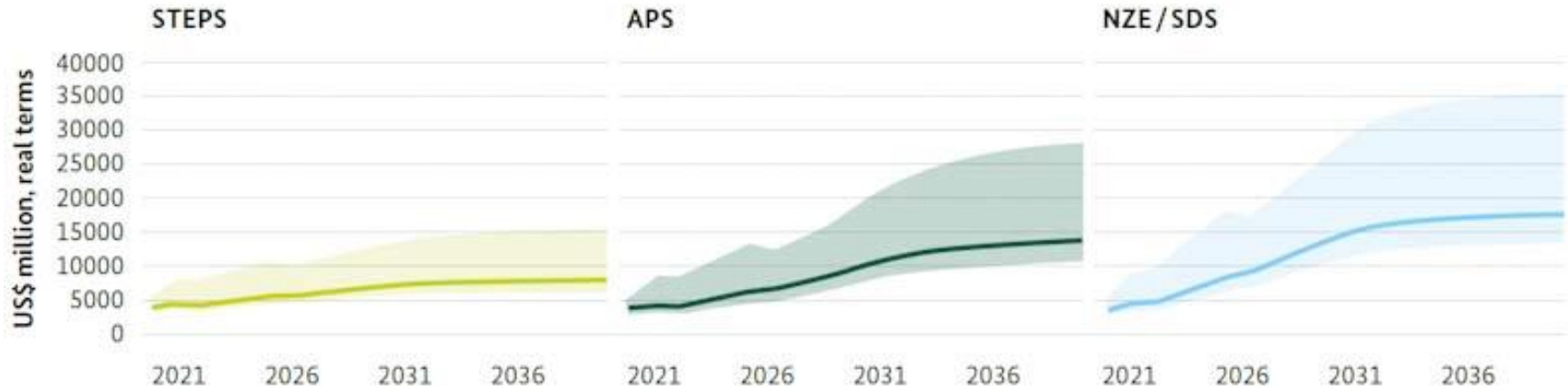
\$100bn to \$260bn additional gross revenue per year

Average annual additional gross revenue from sales of 7 energy transition minerals



\$5bn to \$25bn additional government revenue per year

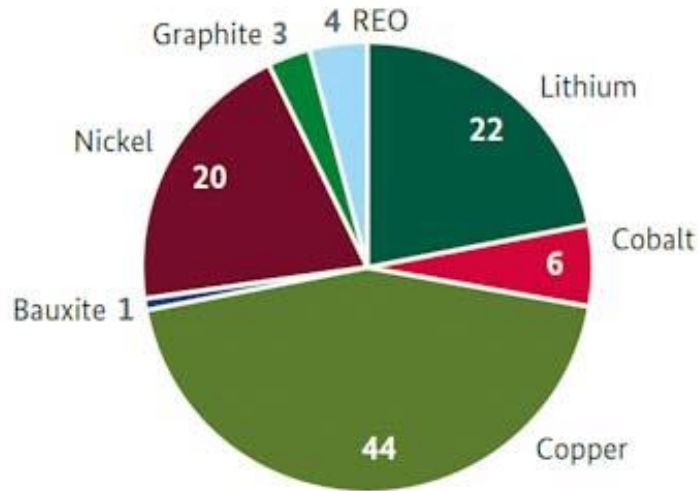
Annual additional government revenue by scenario



Note: line shows central scenario, upper and lower ends of the shaded area show high and low scenarios respectively.
STEPS = Stated Policies Scenario, APS = Announced Pledges Scenario, NZE = Net Zero Emissions by 2050 Scenario, and SDS = Sustainable Development Scenario.

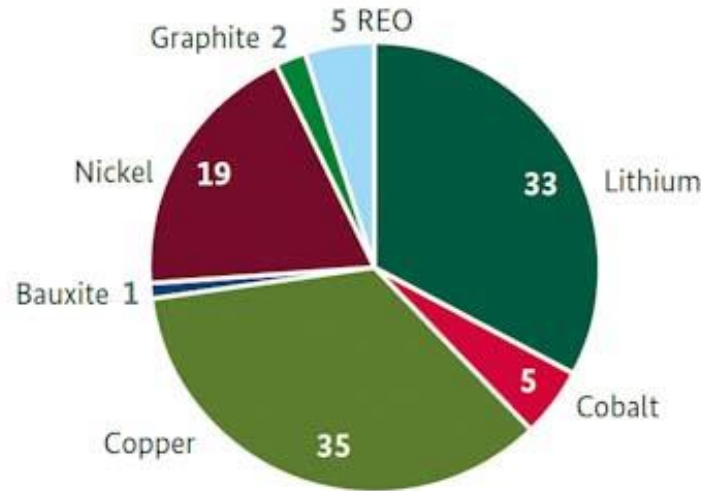
Copper most important mineral, then lithium

Government revenue shares by mineral...



Note: Estimated under APS central scenario

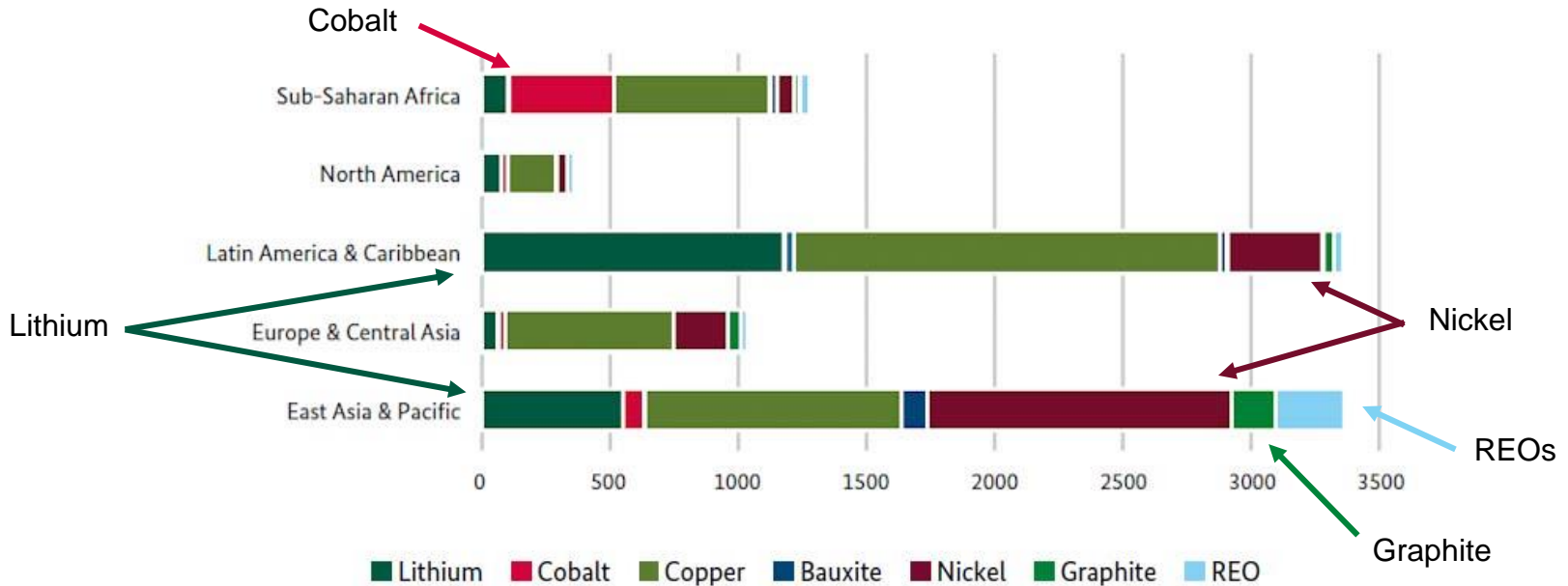
...and under high transition and prices



Note: estimated under NZE high scenario

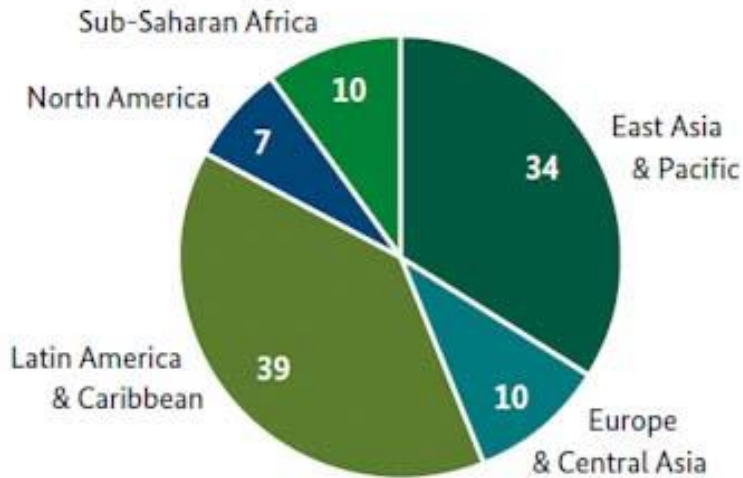
Copper important in all regions

Government revenue shares by region and mineral

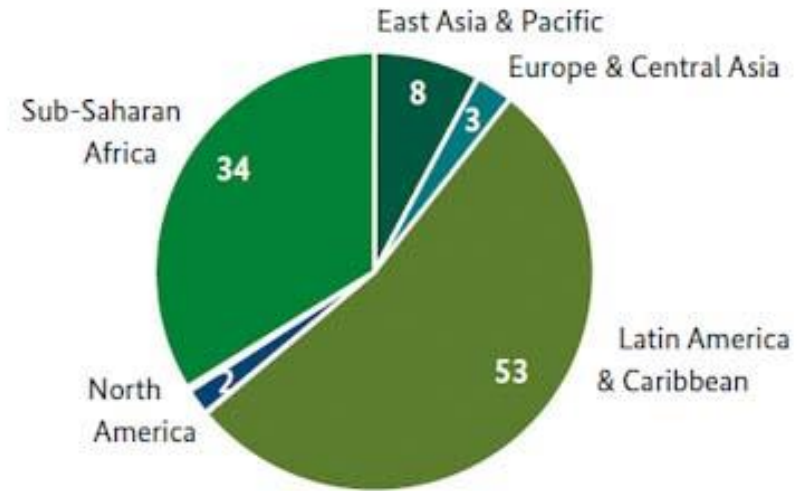


LATAM, Caribbean and SSA big winners relative to GDP

Gross revenue shares by region

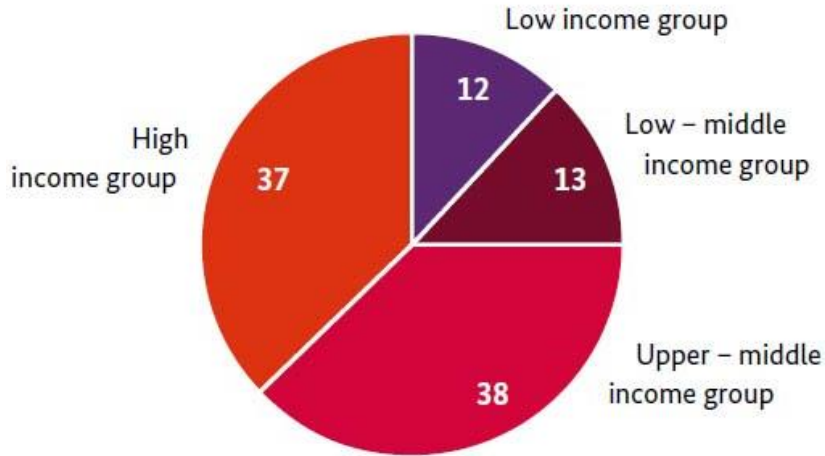


Gross revenue shares adjusted for regional GDP

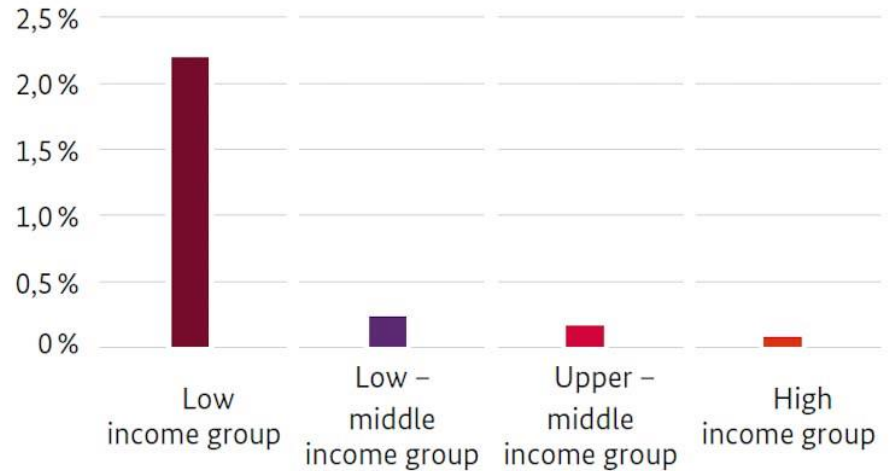


Most revenues go to higher-income countries

Government revenue shares by income group

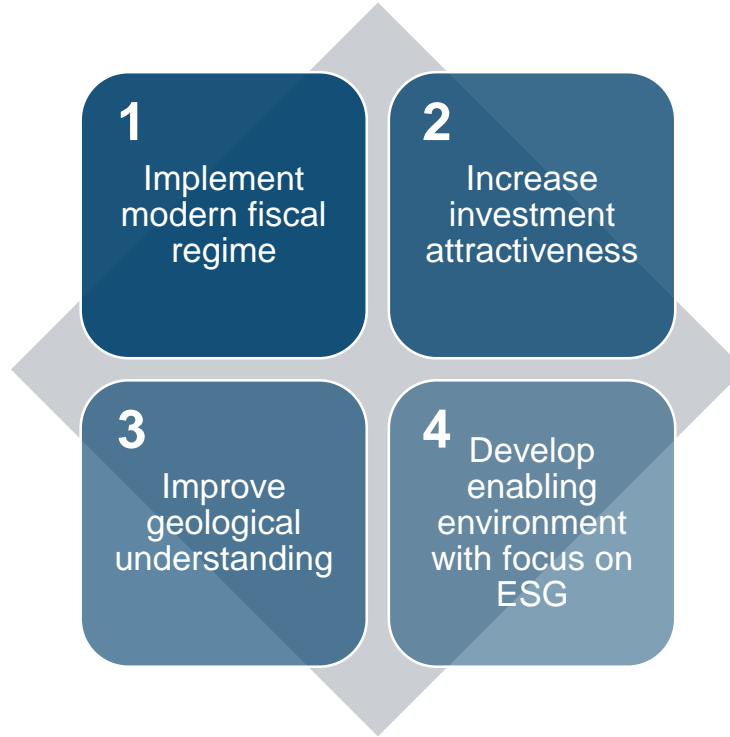


Gross revenues as a share of country group GDP



Note: Estimates under APS central scenario

What governments can do to maximize benefits



View
the
report



Get in touch

Konstantin Born Smith School of Enterprise and the Environment, University of Oxford <i>konstantin.born@ouce.ox.ac.uk</i>	Iain Steel Econias <i>iain.steel@econias.com</i>
---	---

