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Pathways to value-addition in mineral value chains

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The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.

Pathways to value-addition in mineral value chains



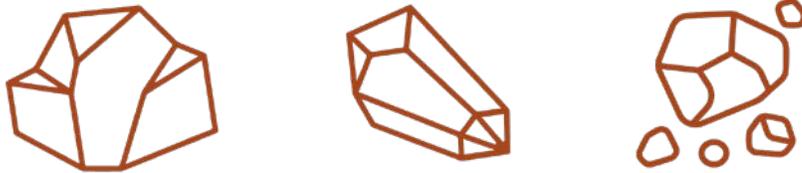
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Tradable v. non-tradable mineral commodities

Typical tradable minerals

- Metals
- Rare earth elements
- Precious metals
- Gemstones



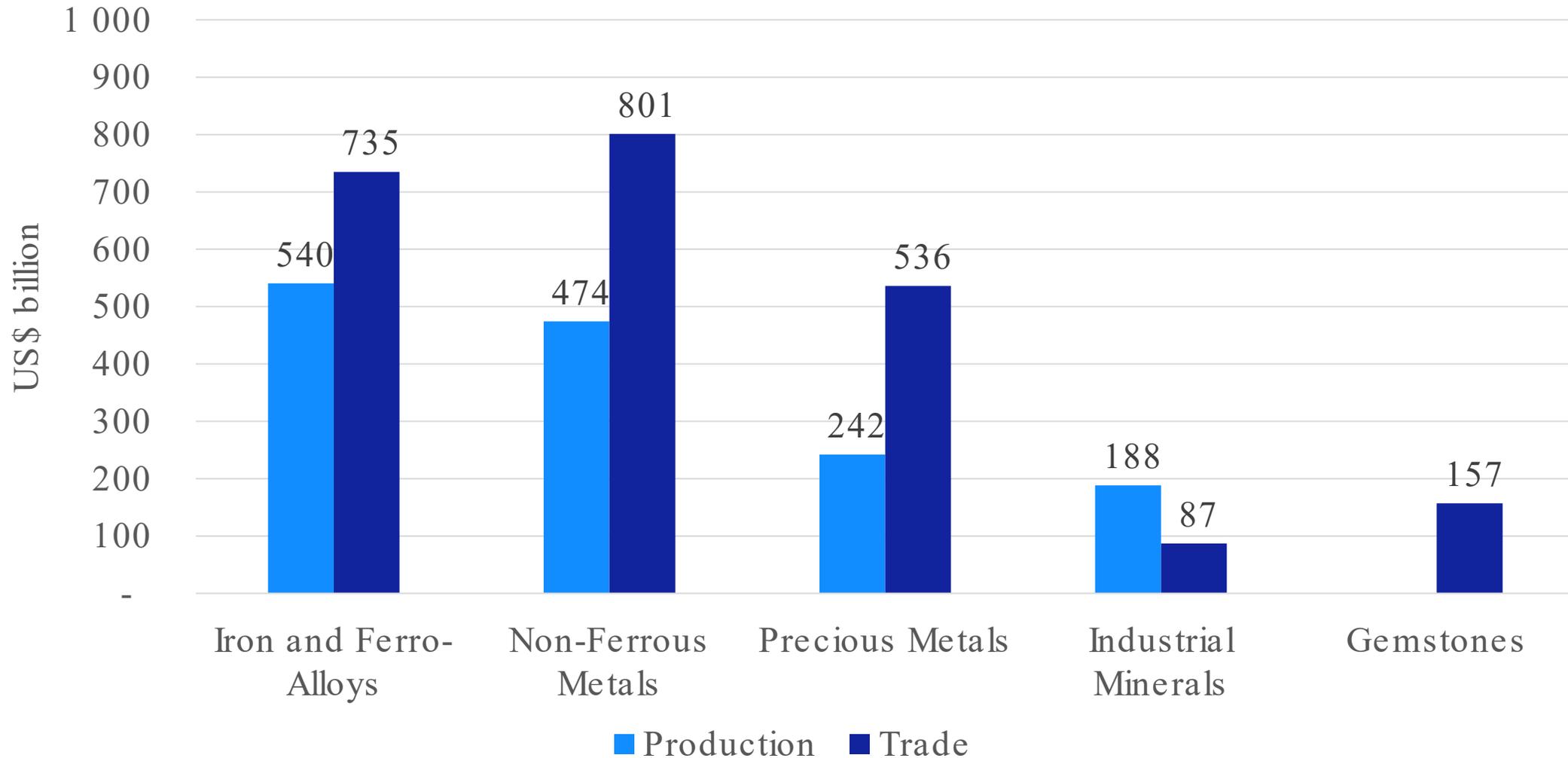
Typical non-tradable minerals

- Various industrial minerals
- Construction materials



But the line is blurry

Global production and trade – tradable and “non-tradable” minerals



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Value addition to non-tradable minerals

a.k.a:

Non-metallic minerals

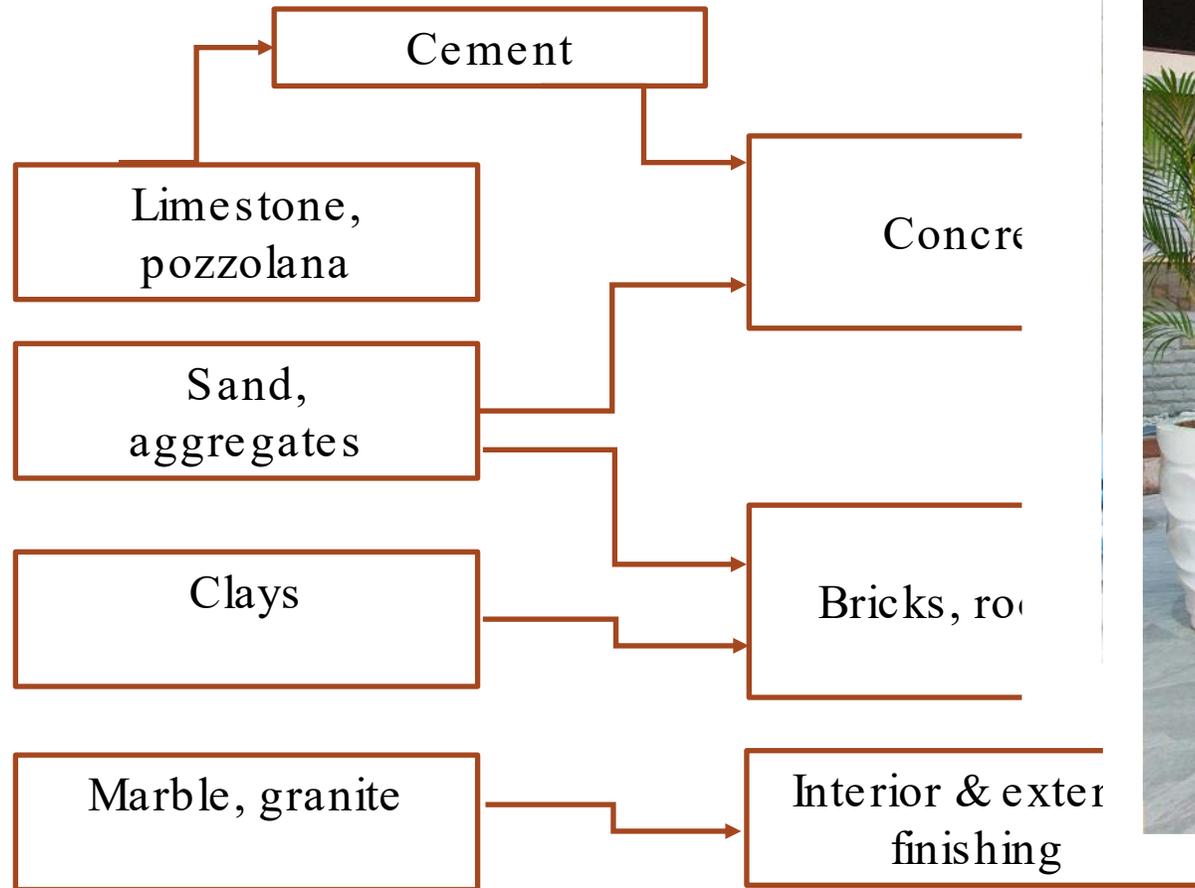
Industrial minerals

Common minerals

Low-value minerals

Development Minerals

Construction mater



Fertilizers

Household goods

Potash, feldspar

Fertilizers

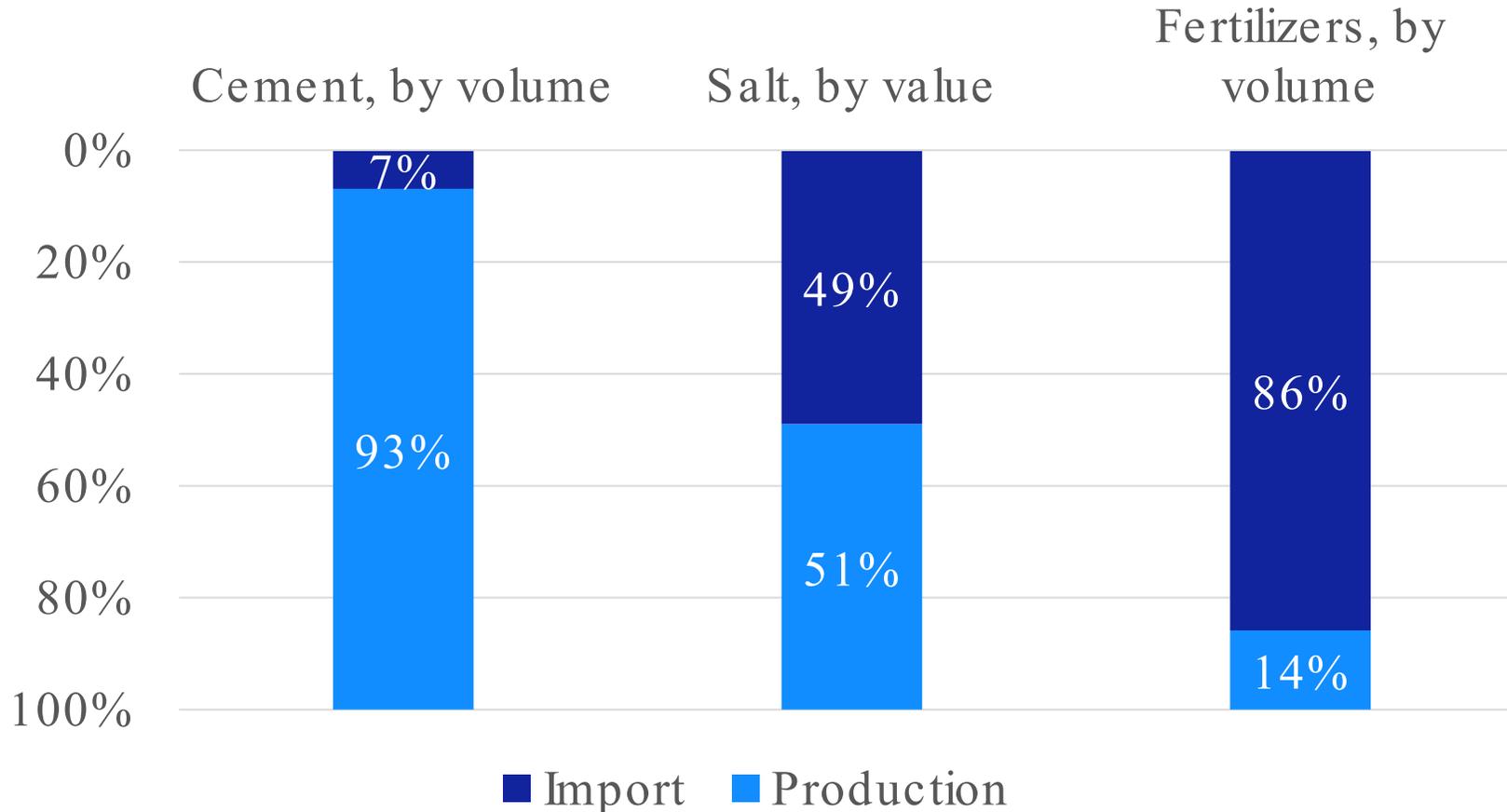
Clays
(common clay,
bentonite, kaolin),
stones, rec.glass

Soap, cosmetics,
ceramics, paints,
glue



Scope for import substitution

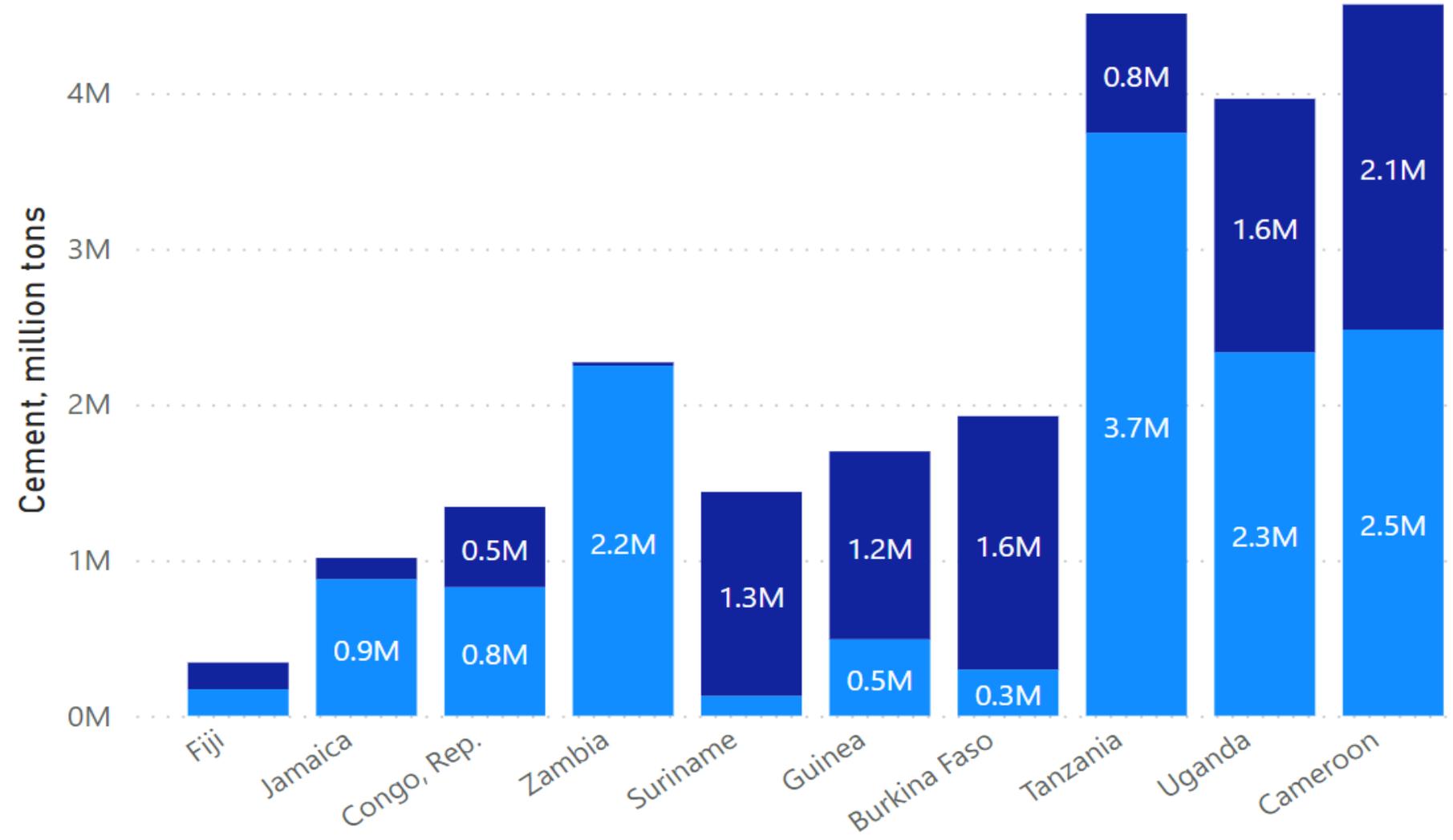
Tanzania: Import v. domestic production of selected non-metallic minerals, 2021



Scope for import substitution

Cement production and imports, annual average 2014-2019

● Cement import ● Cement production



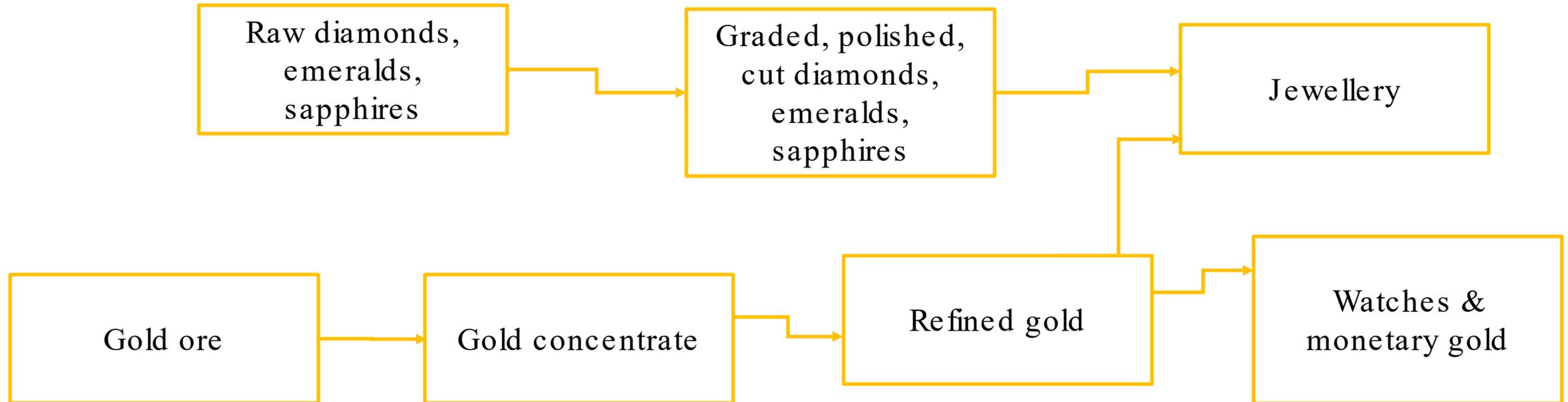
Non-tradable minerals

- Drivers: population growth, economic growth, urbanization
- Domestic consumption & import substitution, potential exports
- More stable markets
- Large bulk for value: sensitive to transportation costs
 - Natural factors: geography - distances, access to trading routes
 - Man-made factors: roads, transportation logistics, energy (fuel), lack of extension services, high cost of credit; high degree of informality, land-related conflicts, poor safety
- “Short” value chains: national or regional
- Jobs, livelihoods and business development

②

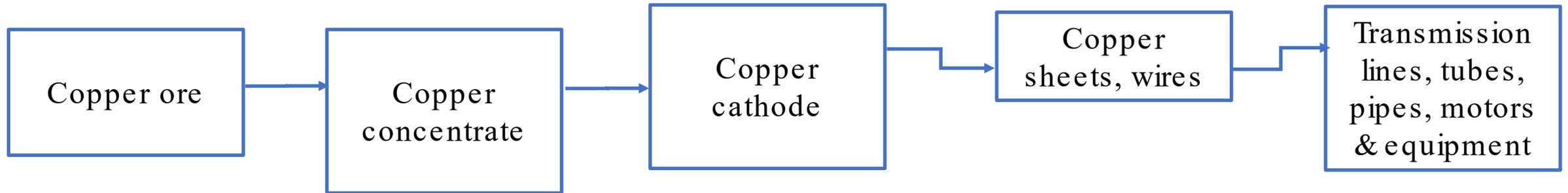
Value addition to
tradable minerals

Gemstones and precious metals VCs



- Gemstone VCs: highly heterogenous, requires expertise, skills, networks
- Precious metals (gold) VCs: commodification; centralized purchase by Central Banks; requires expertise, skills, networks

Critical minerals VCs



- Metals & REEs – require large capital investments, technologies, large variety of skills, industry knowledge, hard & soft infrastructure

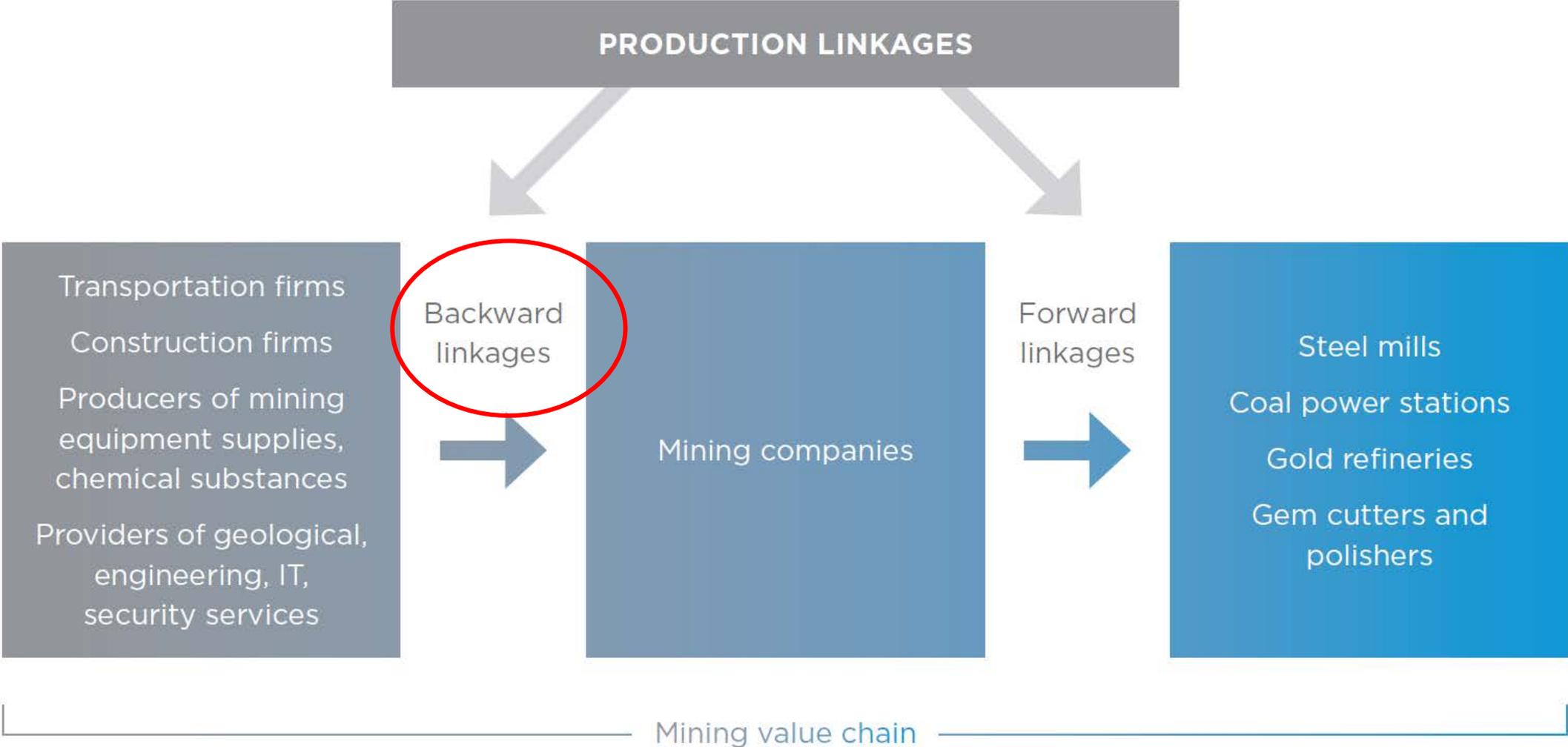
Tradable minerals:

- Drivers: energy transition, digitalization, global consumer preferences/ markets
- Mostly export-bound
- More volatile markets
- High value per bulk: Not “tied” to mineral producing countries, less dependent on transportation costs
- Large capital investments; economies of scale
- “Long” value chains, embedded in global value chains
- Regional & global competition
- Scope for value addition declines from upstream to downstream

③

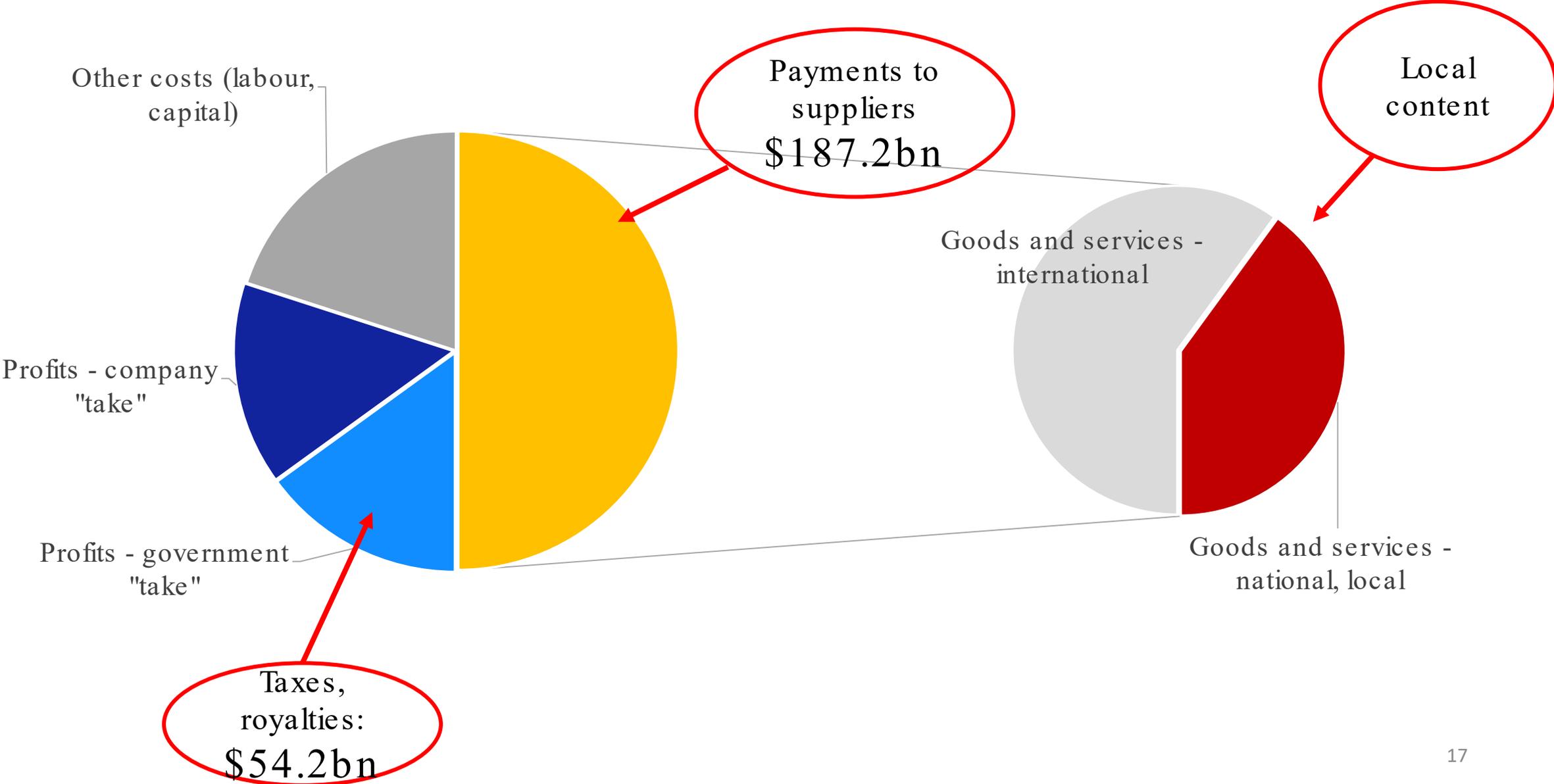
Value addition in
tradable minerals
value chains

Backward linkages - local content/ procurement



Source: UNDP (2018) Managing Mining for Sustainable Development: A Sourcebook

Backward linkages – local content/ procurement



Value addition in tradable minerals VCs



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on the

- “Short” value chains
- High value per bulk: Not “tied” to mineral producing countries
- Products and services (mining-related and unrelated)
- Requires local content requirements and targeted capacity building
- But: overreliance on (depletable) minerals; existing networks of suppliers

Botswana:



ATISA
SUPPLIER
DEVELOPMENT
PROGRAMME
Connect | Develop | Grow



- Buyers: 15 (diamonds, copper/nickel/silver, coal, potash/ soda ash)



- Suppliers: 122 suppliers in agroprocessing, manufacturing, services
- National consultants: 60 accredited national consultants

Products:

PPE (Personal protective equipment):
Boots, hard hats, garments, respiratory
masks, gloves

Value-addition:
Ferrosilicon VA, HDPE pipes, polyetherane
screens

Furniture and textiles: furniture, packaging
bags, concentrate bags

Consumables, supplies:
Dust suppressants, industrial gases, organic
floculants, high performance lubricants

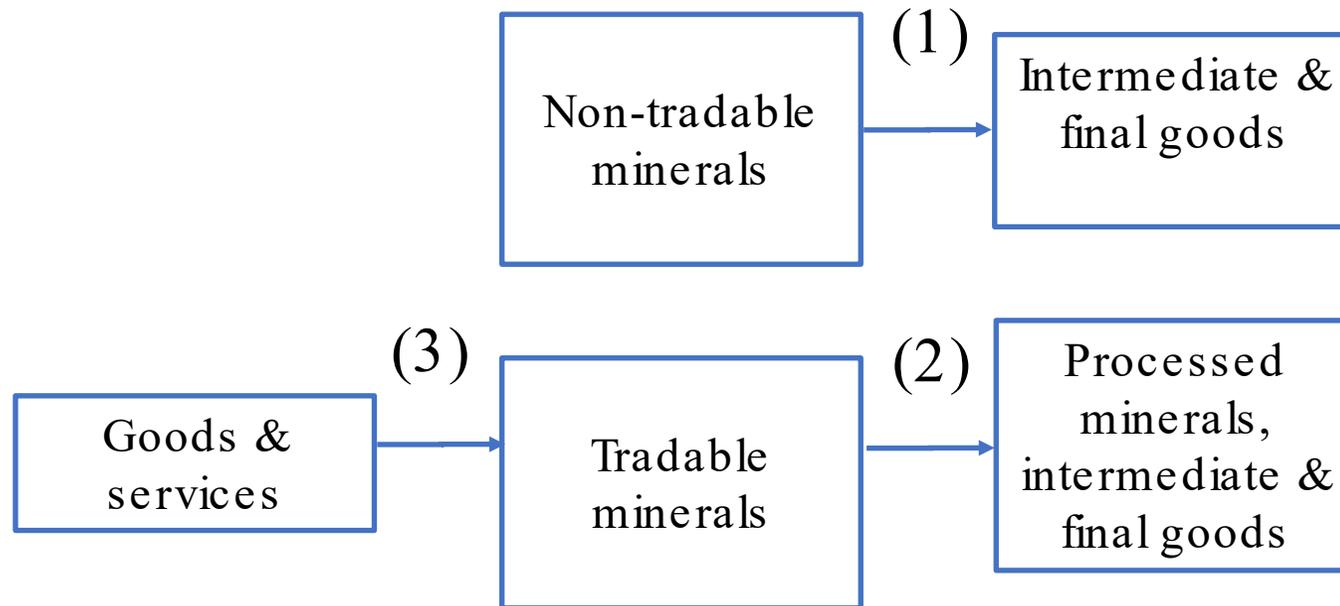
Medical goods:
Surgical masks, blood collection tubes,
medical gases

Equipment and parts manufacturing,
refurbishing & assembly (OEM approved):
radiators, HDPE pipes, steel products, diesel
engine refurbishing, CNC machines transfer
& training, idlers & rollers, conveyor
structures & belts, bowels, spare parts,
hydraulic cylinder manufacturing & repair
facility, inspection testing & calibration,
mobiles & computers assembly



In conclusion:

- Various pathways to value addition using minerals



- Synergies between mineral and agricultural commodities value-addition

Thank you!

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