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Presentation of the project TOAH

"Rapid assessment of value addition and diversification within and beyond the critical energy transition minerals value chain: Zambia "

by

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

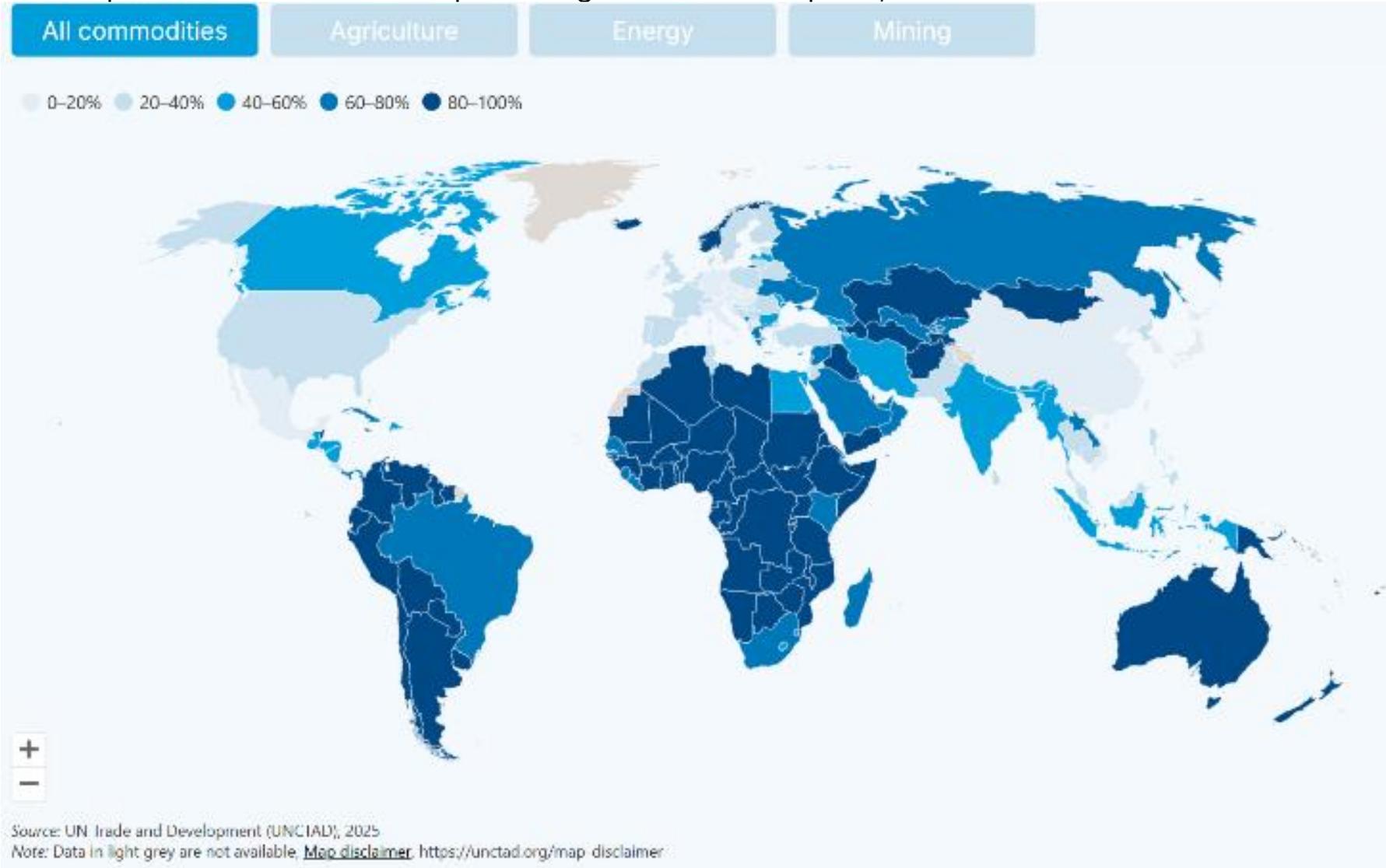


**Rapid assessment of value addition and diversification within and beyond the critical energy transition minerals value chain: Zambia**



# Commodity dependence remains a critical issue for Zambia, as for most developing countries

Export of commodities as a percentage of the total exports, 2021-2023





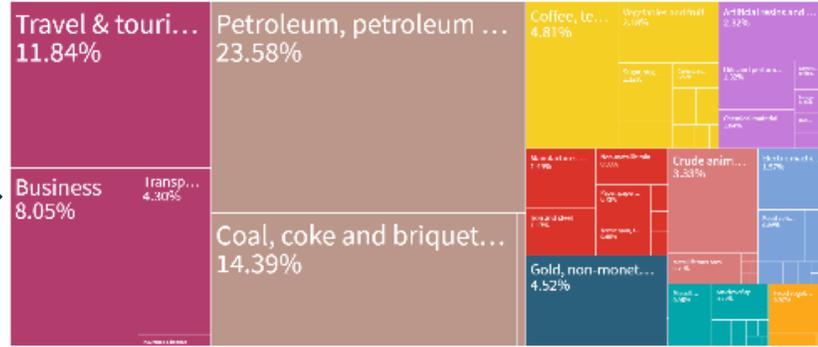
# Two Commodity-Dependent Economies, Two Very Different Outcomes

COUNTRY  
**1**

1980, Exports \$5.5 Billion



2023, Exports \$64 billion

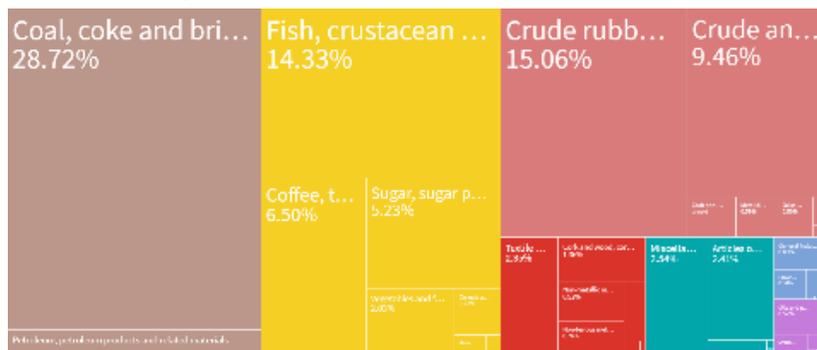


Lower diversification –  
commodity dependent

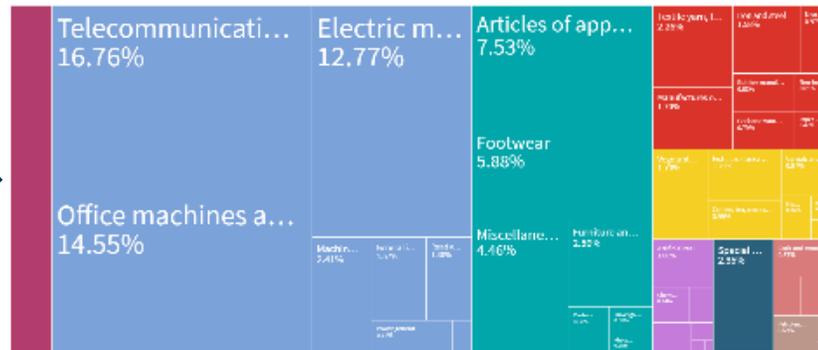
Exports increased by  
over **10x**

COUNTRY  
**2**

1980, Exports \$ 0.1 Billion



2023, Exports \$404 billion

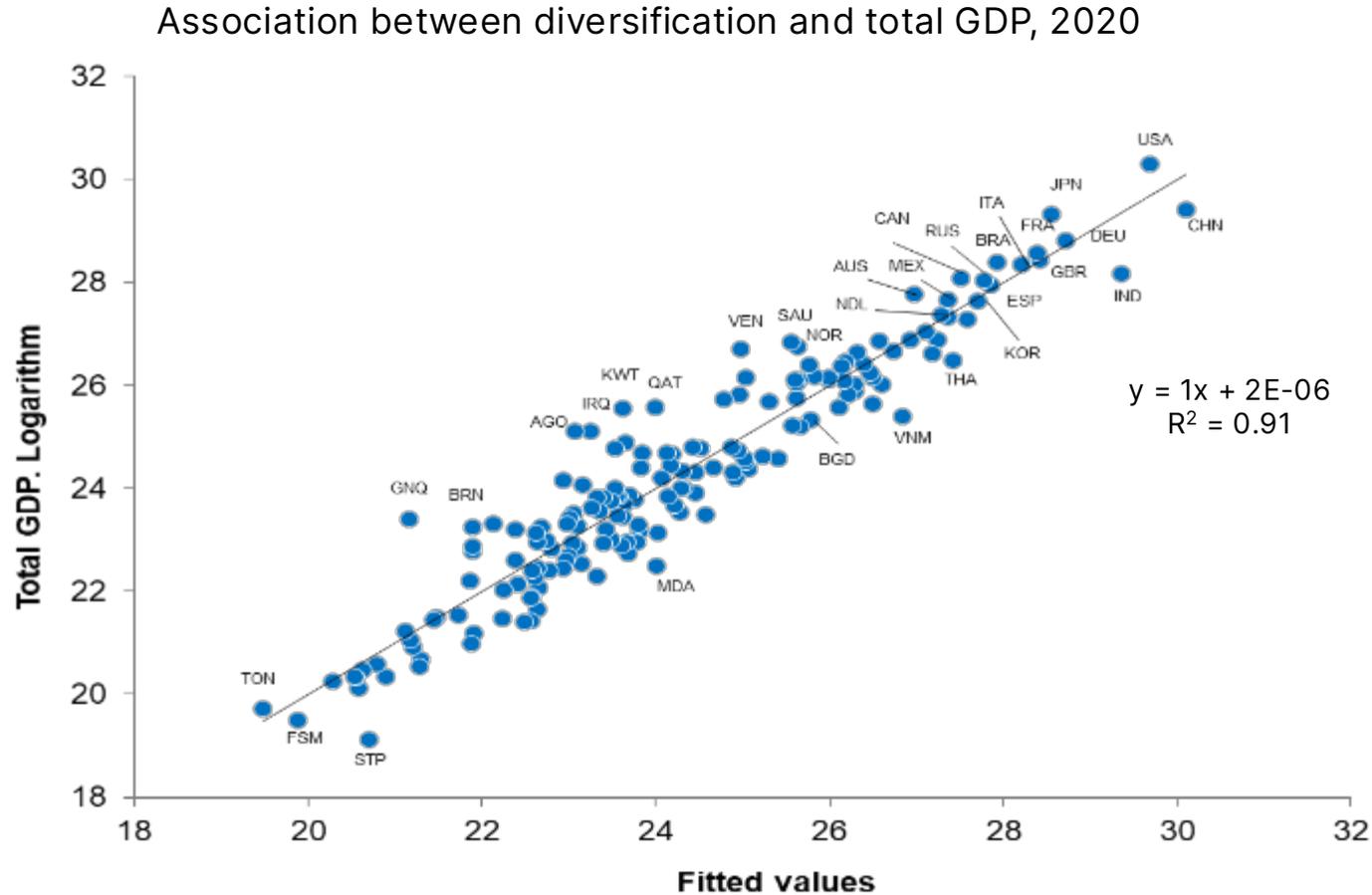


Diversification –out of  
commodity  
dependence

Exports increased by  
over **4,000x**



# The higher the Diversification, The higher the total GDP



Diversification explains

**71%**

of the variation of  
**total GDP** between  
countries

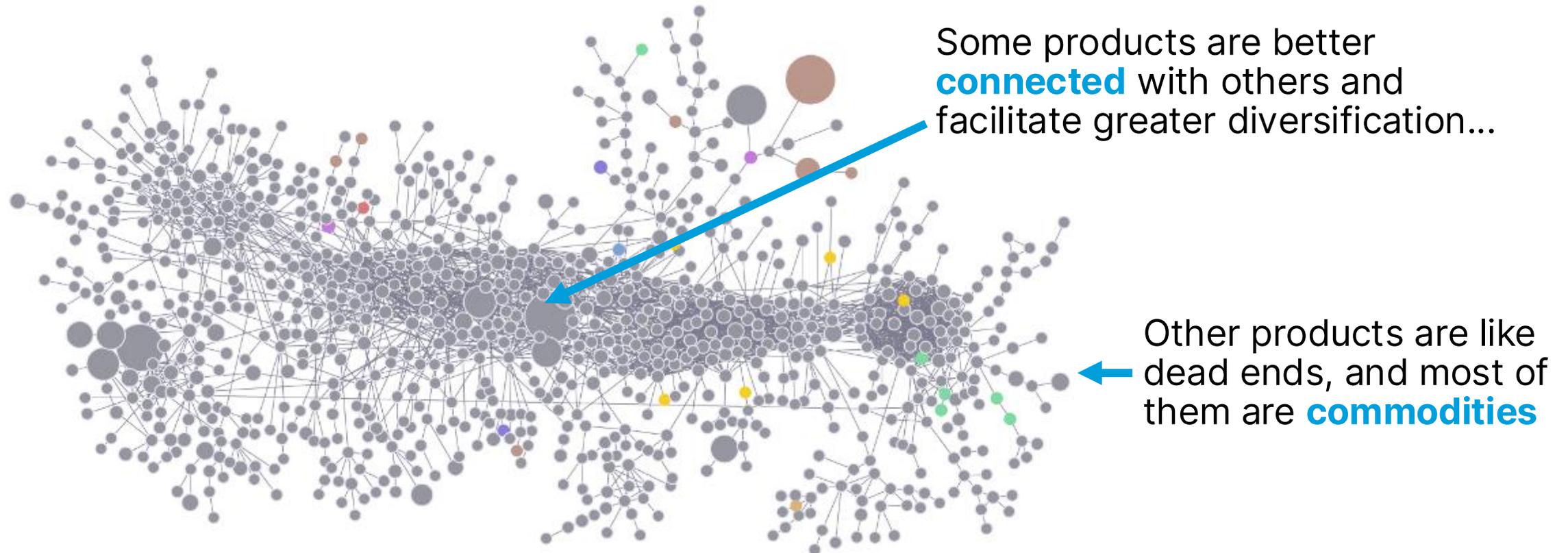
**Diversification** + Average  
**complexity** + Labor force size  
explain **91%** of **total GDP**  
differences between countries

Note: 2019 data, Number of products is based on SITC rev 3 5-digit data disaggregated by unit value as presented in Annex B– Data and methodology.

# ➤ Diversification is path-dependent:

*Today's production shapes tomorrow's possibilities*

The **product space** displays the products connected to each other based on the likelihood that they will be exported together.



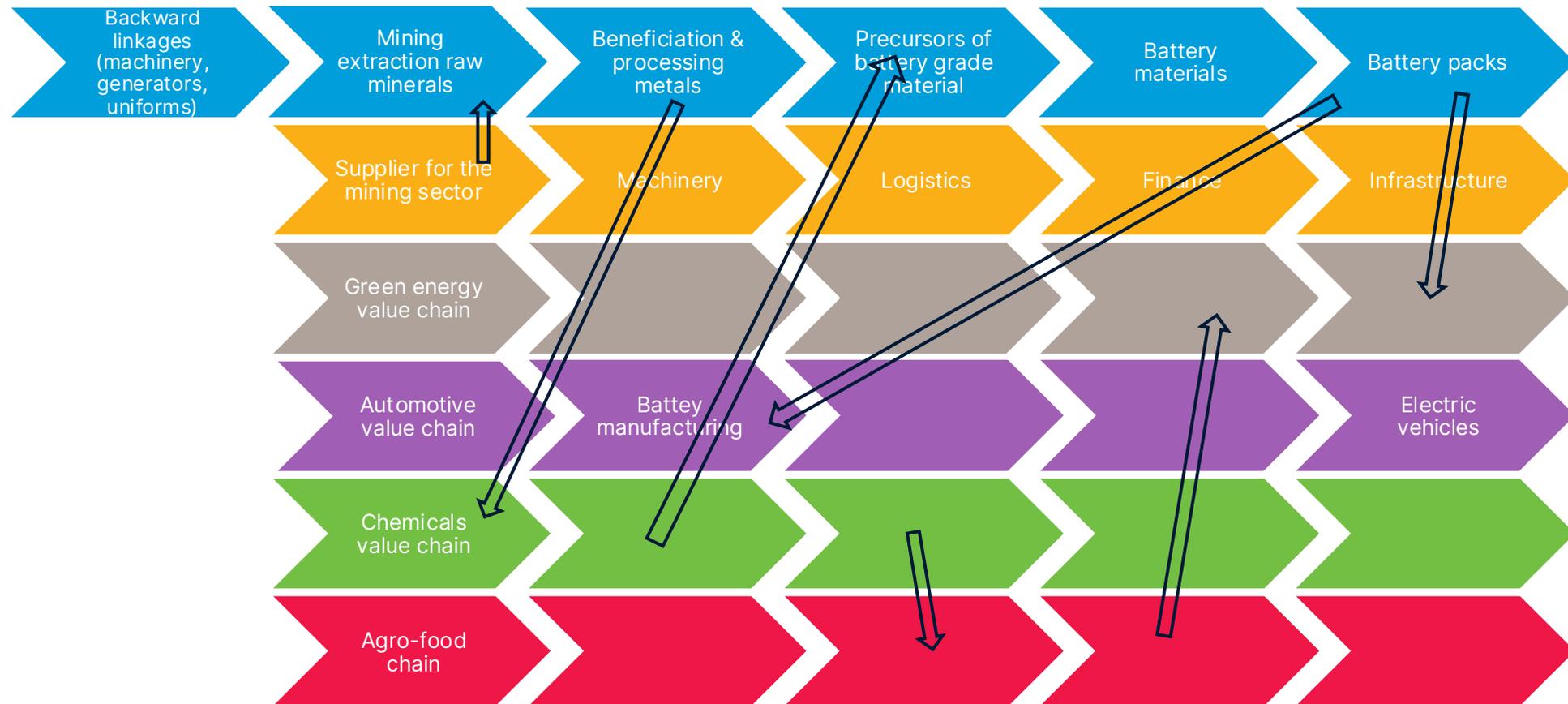
# ➤ Value addition and diversification: Structural transformation perspective



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# Value addition and diversification: Structural transformation perspective



Source: UNCTAD based on Andreoni A and Avenyo E (2023). Critical Minerals and Routes to Diversification in Africa: Linkages, Pulling Dynamics and Opportunities in Medium-High Tech Supply Chains. Background paper commissioned by the UNCTAD secretariat for the 2023 edition of the Economic Development in Africa Report ([https://unctad.org/system/files/non-official-document/edar2023\\_BP1\\_en.pdf](https://unctad.org/system/files/non-official-document/edar2023_BP1_en.pdf)).

# ➤ Opportunities for value addition and diversification in Zambia: World

Currently exporting 4,312 products

## Within the CETM value chain

**45** products

**\$538 million** export opportunity (weighted)

Chemicals



390 million

Machinery and mechanical appliances



42 million

Articles of copper and nickel



55 million

Electrical and electronic equipment



17 million

Iron and steel



8 million

## Beyond the CETM value chain

**181** products

**\$864 million** export opportunity (weighted)

Synthetic polymers



327 million

Iron and steel



180 million

Chemicals



125 million

Food processing



112 million

Machinery and mechanical appliances



43 million

Paper and paperboard



44 million

Electrical and electronic equipment



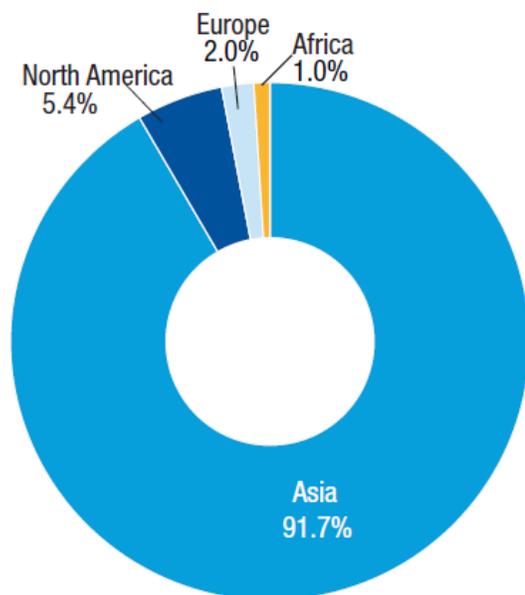
31 million

# ➤ Main markets for potential new products: World

## Beyond the CETM value chain

### Considering existing trading relations

Potential destination markets (based on weighted global export opportunities), by region



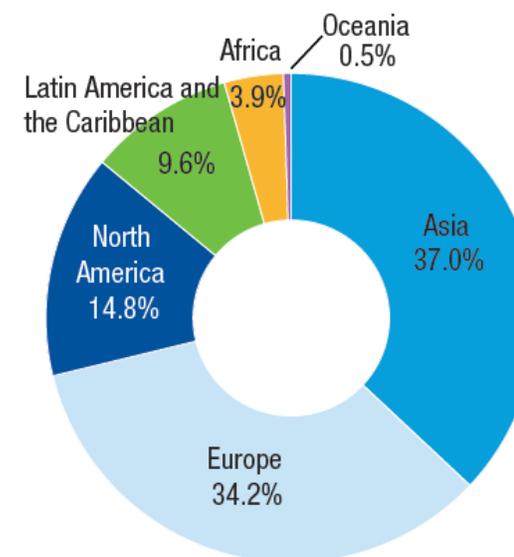
Source: UNCTAD.

Potential destination markets (based on weighted global export opportunities), by economy

Potential market	Share of opportunity
China	55.9
United Arab Emirates	17.4
India	16.0
Canada	3.0
United States of America	2.4
Germany	1.0
Republic of Korea	0.8
Hong Kong, China	0.7
Egypt	0.5
Saudi Arabia	0.4
Others	1.9

### Considering potential new trading relations

Potential destination markets (based on unweighted global export opportunities), by region



Source: UNCTAD.

Potential destination markets (based on unweighted global export opportunities), by country

Potential market	Share of opportunity
United States of America	8.2
Germany	7.7
Canada	6.6
Republic of Korea	6.6
Mexico	6.3
China	5.8
United Arab Emirates	4.1
France	4.0
India	3.4
Saudi Arabia	3.0
Others	44.3

# ➤ Import substitution opportunities

## Within the CETM value chain

**17** products

**\$25 million** Import opportunity

Chemicals



14 million

Electrical and electronic equipment



6 million

Synthetic polymers



3 million

Machinery and mechanical appliances



2 million

Articles of copper and nickel



1 million

## Beyond the CETM value chain

**57** products

**\$203 million** Import opportunity

Chemicals (including Fertilizers)



83 million

Iron and steel



54 million

Synthetic polymers



21 million

Machinery and mechanical appliances



19 million

Paper and paperboard



17 million

Food processing



10 million

Electrical and electronic equipment



1 million

# ➤ Preliminary results: Opportunities for value addition and diversification for Zambia in the SADC

Currently exporting 4,312 products

## Within the CETM value chain

**29** products

**\$64 million** export opportunity

Electrical and electronic equipment



21 million

Machinery and mechanical appliances



15 million

Chemicals



12 million

Synthetic polymers



10 million

Iron and steel



5 million

Articles of copper



1 million

## Beyond the CETM value chain

**246** products

**\$257 million** export opportunity

Iron and steel



86 million

Machinery and mechanical appliances



55 million

Chemicals and pharma



39 million

Synthetic polymers



26 million

Food processing



21 million

Paper and paperboard



19 million

Electrical and electronic equipment



10 million

# ➤ Industry consultations

- ▶ Conducted semi-structured interviews through **company visits** and a 2-day **workshop**
- ▶ Validated **104 products** in **8 priority sectors**
- ▶ Potential to generate ~**115,000** direct and indirect jobs
- ▶ Total Investment **US\$ 1.21** Billion



# Sector specific **Diversification pathways**

## Copper Semi-Fabricates

Bar, rods, wire, coils



### Strategic rationale

- Uses Zambia's refined copper
- Moderate upgrading
- Links to current industrial activities

### Market logic

- Inputs for electrical equipment & fabrication
- Competitiveness where reliability and proximity matters
- Strong fit for SADC and regional demand

## Copper Tubes and Pipes

Tubes and pipes



### Strategic rationale

- Bulky and logistics-sensitive → regional production advantage
- Used in construction and industry

### Competitiveness conditions

- Dimensional consistency
- Certified quality standards
- Reliable after-sales support
- Import substitution potential within SADC

Articles of copper

**US\$ 22 Million**

EXPORT OPPORTUNITY  
(World weighted)

**7,200**

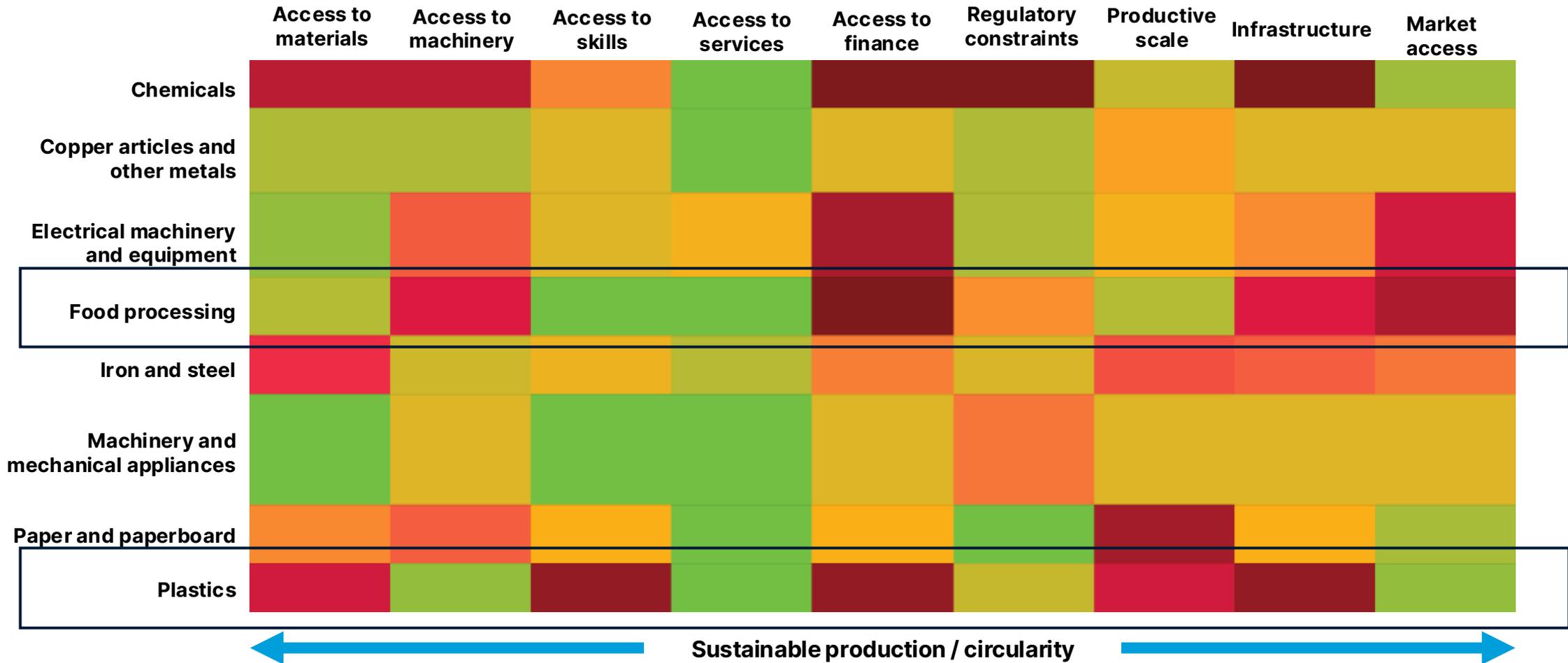


Direct and  
Indirect Jobs

**US\$ 72 Million**

INVESTMENT

# ➤ Diversification constraints are product-specific



# ➤ From Analysis to Action: Policy Workshop Outcomes

- ▶ Cross-ministerial engagement
- ▶ Sector-specific constraint mapping
- ▶ Alignment of existing instruments to priority product clusters
- ▶ Identification of quick wins and medium-term reforms
- ▶ Consensus on coordination and delivery mechanisms



# ➤ Policy Instrument Example | Chemicals

Proposal	National Chemical Skills Expansion and Apprenticeship Programme
<b>Gap</b>	Shortage of applied chemical engineers, technologists, and plant operators; weak transition from formal qualifications to production-ready competence
<b>Instrument description</b>	<p>A national dual-training programme combining upgraded university and TEVET curricula with</p> <p>Mandatory, audited industry apprenticeships to build verified plant-level competence in chemical processing, instrumentation, quality assurance, and safety.</p> <p>Co-financed through a ring-fenced Skills Development Levy window, with time-bound training subsidies and targeted lab and trainer upgrades.</p>
<b>Responsible institutions</b>	Ministry of Education (lead); TEVETA; HEA; ZAQA; Ministry of Technology and Science (MTS); MCTI; Citizens Economic Empowerment Commission; Zambia Association of Manufacturers; universities, technical colleges, and chemical firms.
<b>Delivery mechanism</b>	<p>Ministry of Education establishes the programme and chairs inter-ministerial coordination.</p> <p>TEVET Authority defines competency standards, accredits providers and firms, and manages apprenticeships.</p> <p>Universities and technical colleges deliver modular training;</p> <p>Firms host supervised apprenticeships.</p> <p>Quality assurance is enforced through national qualification and higher-education regulators, with industry associations coordinating placements.</p>
<b>Timeframe</b>	2026: Launch, standards setting, pilot apprenticeships. 2027: Scale-up and expanded firm participation. 2028: Mainstreaming as a permanent dual-training track
<b>Enabling conditions</b>	Ring-fenced and transparent levy financing; accredited providers and upgraded labs; enforceable apprenticeship rules; strong firm participation; qualified assessors; monitoring of outcomes and compliance.

# ➤ How product-level coordination looks in practice

Sector	Gaps	Proposed actions	Main actors
<b>Iron &amp; Steel</b> (Structural steel sections, pipes, fabricated components)	<ul style="list-style-type: none"><li>• Energy reliability and cost</li><li>• Process engineering skills</li><li>• Long-term capital</li><li>• Certification for infrastructure use</li></ul>	<ul style="list-style-type: none"><li>• Dedicated industrial power agreements</li><li>• Welding &amp; fabrication TEVET programs</li><li>• DBZ long-term financing window</li><li>• Public infrastructure procurement &amp; mining supply chains</li><li>• ZABS fast-track certification</li></ul>	<ul style="list-style-type: none"><li>• Ministry of Commerce, Trade &amp; Industry (MCTI)</li><li>• Ministry of Energy</li><li>• DBZ</li><li>• TEVETA</li><li>• ZABS</li><li>• Infrastructure ministries</li><li>• Zambia Chamber of Mines</li></ul>

# ➤ From opportunity to delivery

## The Opportunity Is Real

226 export-aligned products  
US\$1.4 billion weighted opportunity  
US\$1.21 billion indicative investment  
~115,000 potential jobs

## The Capabilities Exist

Strong mineral base  
Regional market access (SADC, AfCFTA)  
Existing institutions (skills, finance, standards, procurement)  
Validated product portfolio

## The Task Is Coordinated Delivery

Prioritize a national product portfolio  
Align instruments around product clusters  
Use domestic and regional demand to scale  
Monitor investment, firms, and jobs



# Thank you

