

Guidelines and best practices for MSMEs to assure resiliency and progress towards a circular economy in sustainable resource management and critical raw material supply chain solutions in Ukraine

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RESOURCE MANAGEMENT WEEK 2021

ENABLING SUSTAINABILITY PRINCIPLES IN RESOURCE MANAGEMENT






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Criteria for MSMEs in Ukraine



SMALL AND MEDIUM ENTERPRISES ARE THE “BACKBONE” OF DEVELOPED ECONOMIES

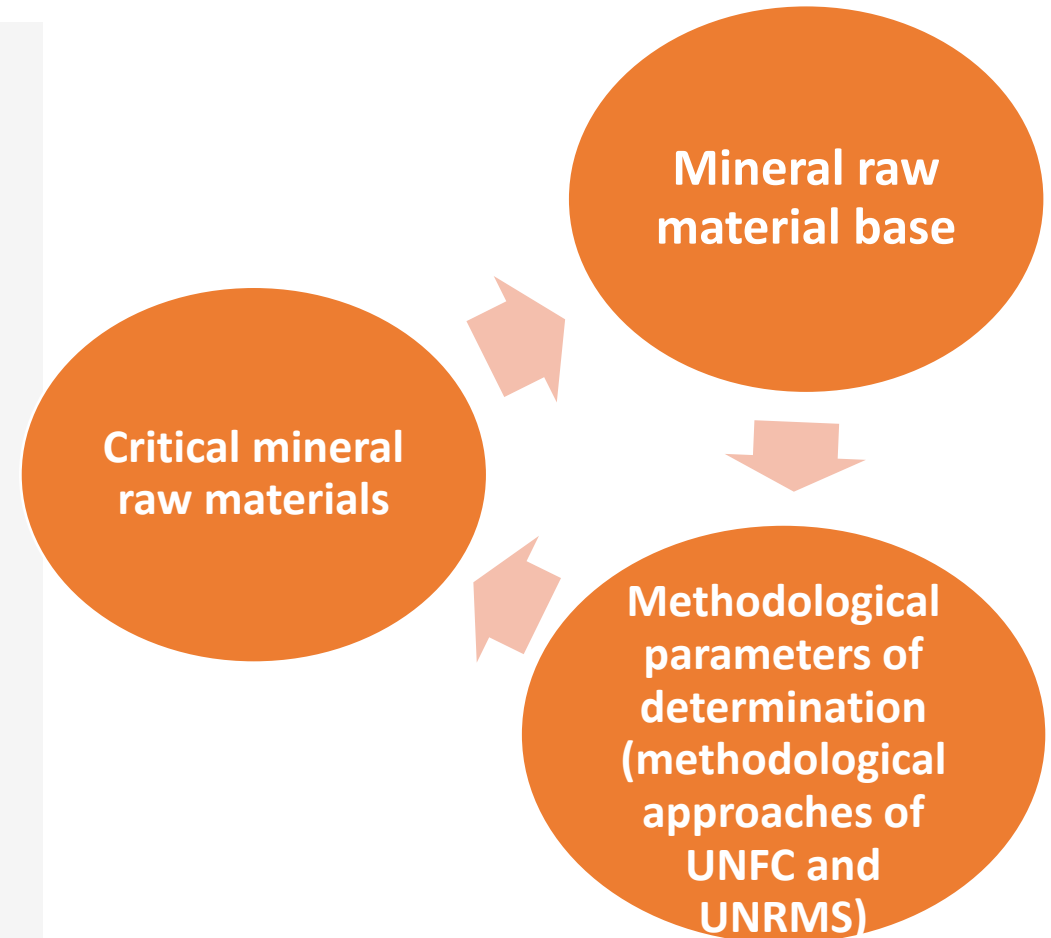
	Micro-enterprises:	Small enterprises:	Medium enterprises:
	balance value of assets— up to 350 thousand euro;	balance value of assets— up to 4 million euro;	balance value of assets — up to 20 million euro;
	net income from sales of products (commodities, works, services) — up to 700 thousand euro;	net income from sales of products (commodities, works, services) — up to 8 million euro;	net income from sales of products (commodities, works, services) — up to 40 million euro;
	average number of employees — up to 10 people.	average number of employees — up to 50 people.	average number of employees — up to 250 people.

Parameters (indicators) of criticality

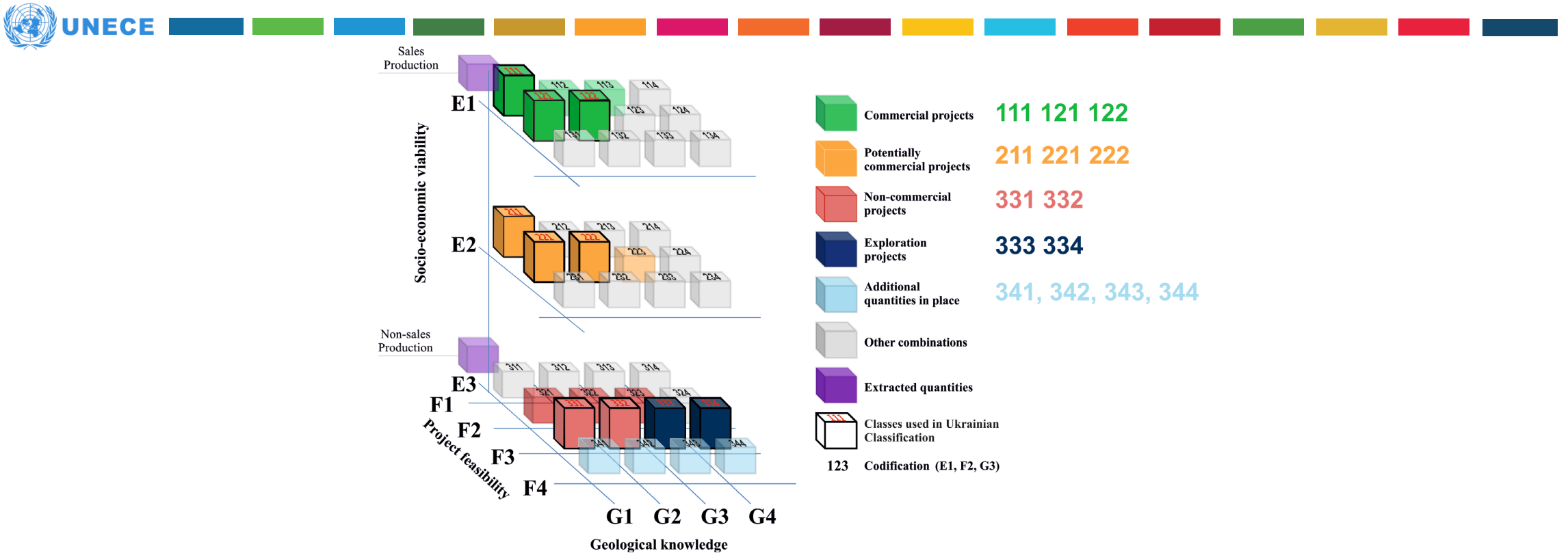


Parameters (indicators) of criticality can be different:

- ✓ **risk of deficit**
- ✓ **economic importance**
- ✓ **supply risk**
(concentration of production)
- ✓ **production growth**
(change in market size and geological resources)
- ✓ **market dynamics**
(price change)



United Nations Framework Classification (UNFC)

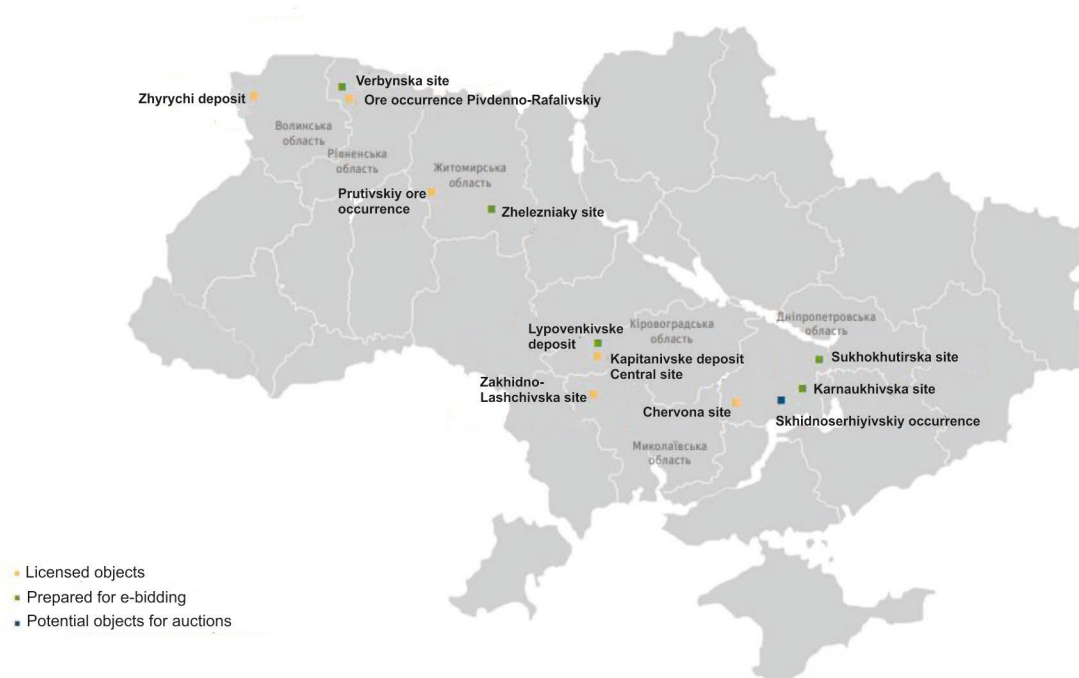


United Nations Framework Classification (UNFC) is the foundation for global geopolitical forecasts on energy and mineral raw materials, and it is designed to satisfy the needs related to research on energy and mineral raw materials, resource management, corporate business processes, financial reporting standards.

Non-ferrous metals



Ni, Co, Cr, Cu, Mo



Ukraine has significant deposits of non-ferrous metals, but imports them in large quantities for its own needs.

Explored deposits and ore occurrences are complex and concentrated, mainly, within the Ukrainian Shield.

They are extracted in very small quantities or not extracted at all.

**Recoverable reserves are (thousand tonnes): Ni - 215, Co - 8,8, chromium oxide - 453;
inferred resources (thousand tonnes): chromium oxide - 3120, Cu - 95.**

Source: Investment Atlas of the State Service of Geology and Subsoil of Ukraine

Lithium deposits



Ukraine has some of the largest lithium deposits in Europe with proved reserves and inferred resources.

There are two explored deposits and two previously explored sites of lithium ore, as well as a number of lithium mineralization ore occurrences.

Today, lithium is not being mined in Ukraine, one deposit is licensed.

Source: Investment Atlas of the State Service of Geology and Subsoil of Ukraine

Rare and rare earth metals



Lypniazkiy, Tashlytskiy and Novostankuvatskiy ore occurrences belong to one structure, there are also occurrences of beryllium, lithium (Dobra site). These objects are offered for exploration and can be considered as one investment project.

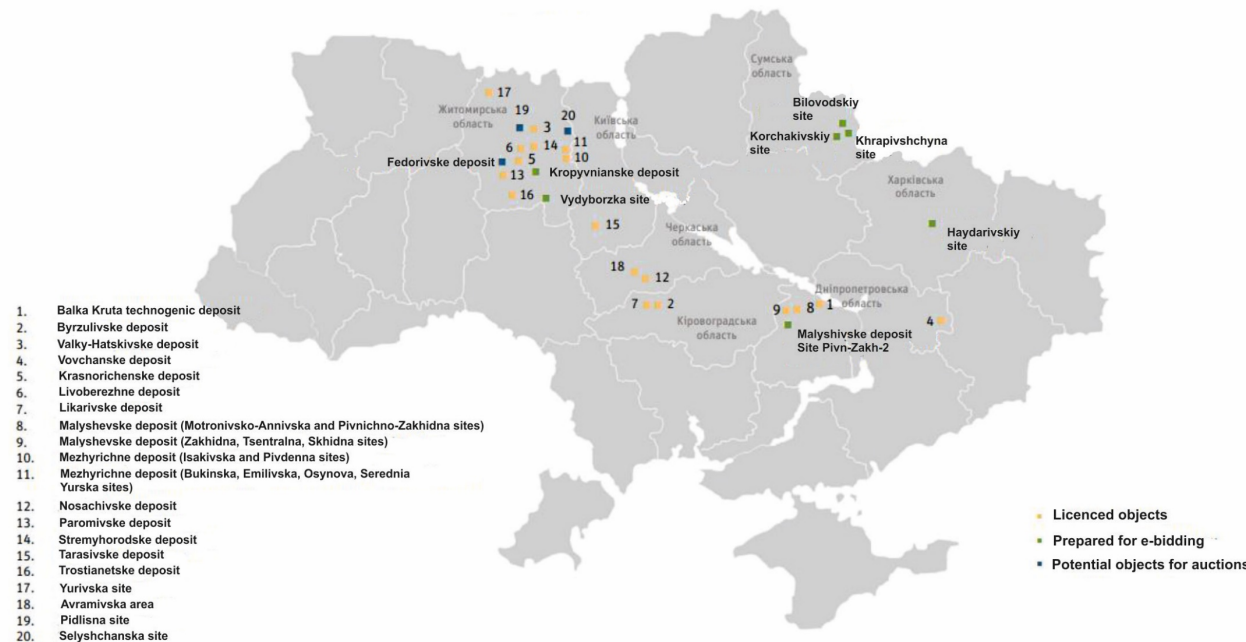
Ta, Nb, Be, Zr, Sc

Rare and rare earth metals have been found in complex deposits and ore occurrences within the Ukrainian Shield.

Zirconium and scandium are concentrated in placer and bedrock deposits in significant quantities, their extraction is not underway.

Reserves of tantalum pentoxide, niobium, beryllium have been estimated at six deposits, extraction is carried out at Malyshevske and Vovchanske deposits.

Titanium ore



Ukraine is one of the ten leading countries in the world in terms of proved reserves of titanium ores, and it provides more than 6% of their global production.

There are 27 deposits and more than 30 ore occurrences of various degree of geological knowledge.

The main titanium-containing mineral is ilmenite.

Currently, only placer deposits are being developed, which is about 10% of all explored reserves, the rest is contained in bedrock deposits.

Source: *Investment Atlas of the State Service of Geology and Subsoil of Ukraine*

Supply risk of critical raw materials in Ukraine



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Low supply risk	Medium supply risk	High supply risk
<p>Gallium Hafnium Magnesium Natural graphite Scandium Silicon metal Titanium</p>	<p>Barite Beryllium Bismuth Cobalt Coking coal Fluorspar Heavy and light rare earth elements Tantalum Niobium Phosphorite Phosphorus (apatite) Lithium Strontium</p>	<p>Antimony Boron Germanium Platinum group metals Tungsten Vanadium Bauxites</p>

Supply of CRMs from secondary sources



**Recycling of
vehicles,
batteries**



**Recycling of
photovoltaic
modules**



**Recycling of
aviation and
electronic
defense waste**



**Recycling of
glass**



**Processing of
dumps, settling
tanks and
tailings**



Trade barriers



- ❖ Measures related to standards that lead to high compliance costs
- ❖ State and commercial secrets and patent costs
- ❖ Significant amount of the minimum consignment of critical raw materials
- ❖ Logistics challenges, including customs requirements

Logistics and supply chains



Effective supply chain management is one of the crucial factors in maintaining and increasing revenues and competitiveness in current and future markets.

A separate challenge for logistics was quarantine, which was introduced in March 2020 due to COVID-19.

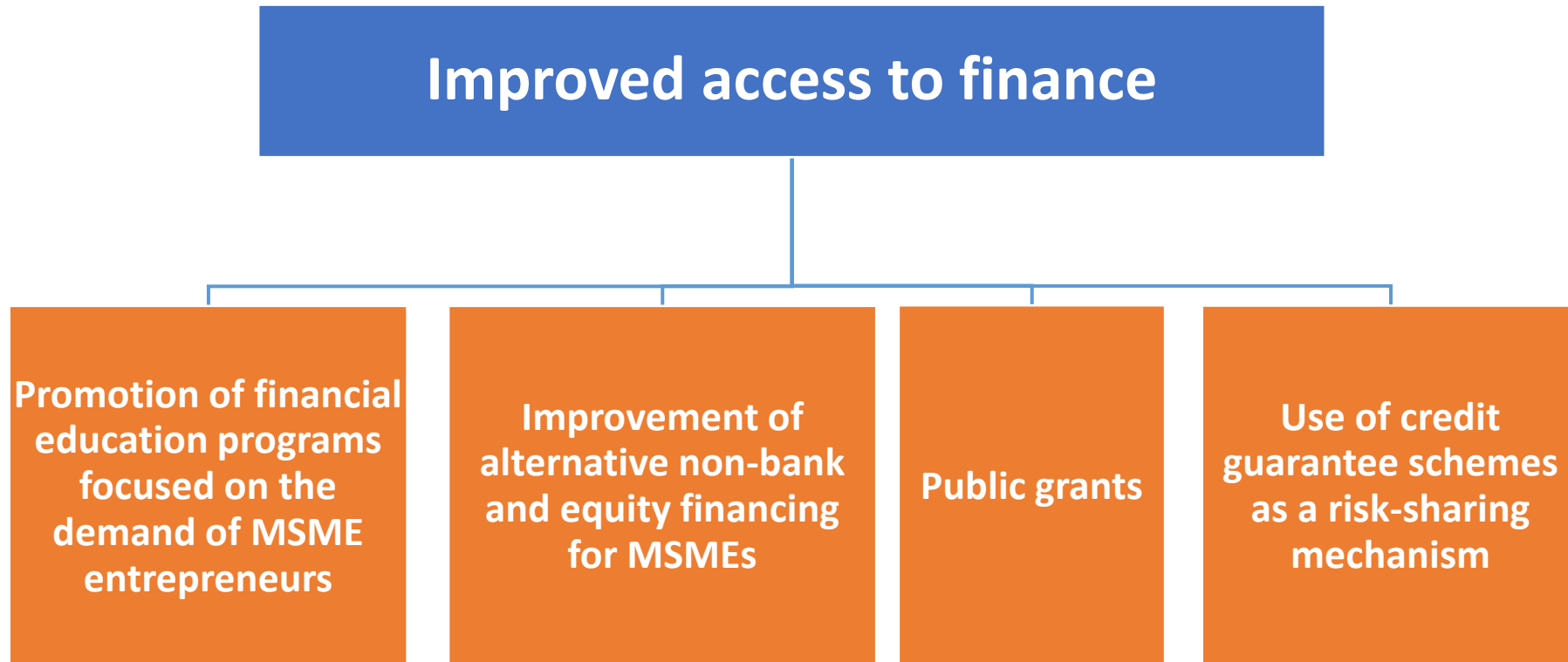
For domestic enterprises, the formation of sustainable supply chains is a new area, but some of them have already taken effective practical steps in this direction.

Enterprises need to respond to current changes and ensure that resources are properly allocated to support business activities.

Recommendations for MSMEs in Ukraine



Recommendations for MSMEs in Ukraine



Minimization of consumer demand risks for MSMEs



- ✓ Monitoring of short-term liquidity
- ✓ Assessment and anticipation of financial and operational risks
- ✓ Creation of a contingency fund
- ✓ Tracking factors that may affect consumers, suppliers, contractors and partners
- ✓ Continuous development and improvement of employees' skills

Thank you!

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