

Ukraine's Critical Minerals:
Business Opportunities
for the United Europe







MINING FRONT

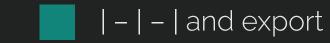




Ukraine is among the top 10 producing countries for several mineral raw materials, which surplus is exported

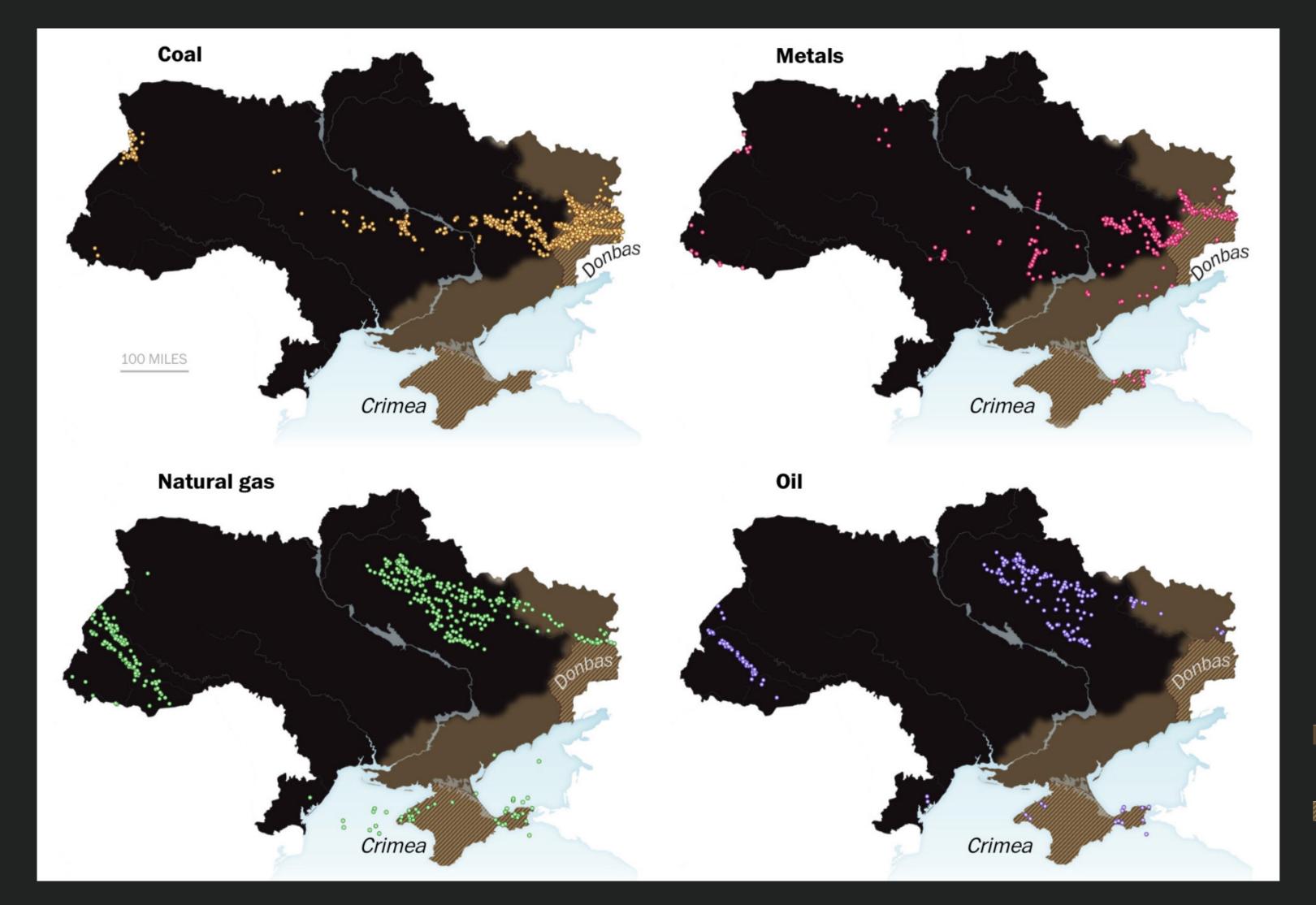
	Place in global production	Production	% global production	Cost of export / impprt, \$
Titanium	5	564 thousand t	7,3	137 mln
Kaolin	5	1,8 million t	4,8	48 mln
Manganese	5	686 thousand t	3,2	- 65 mln
Iron ore	5	40,4 million t	2,6	4,2 bln
Graphite	5	10 thousand t	0,9	0,9 mln
Zirconium	5	18 thousand t	1,1	- 0,2 mln
Uranium	5	944 tons	1,5	520 mln *

production for domestic consumption



Source: World Mining Data, 2021

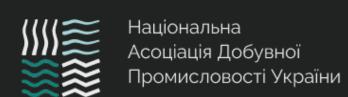
Ukraine's major raw materials and Russia-annexed areas



- Russian-controlled areas since Feb.24
- Russian-annexed (Crimea) or separatist-controlled (Donbas) areas since 2014

THE WASHINGTON POST source: SecDev analysis









Titanium

- Ukraine is one of the 10 leading countries in the world in terms of proven reserves of titanium and accounts for 7% global production
- 28 fields and more than 30 ore occurrences have been discovered so far. The main titanium-containing minerals are ilmenite, rutile.
 Zirconium is often a coproduct
- Currently, titanium is mined at six heavy-mineral sands fields, from which ~900.000 tons of concentrate are produced thereof (~ 350 thousand tons !"#2). There is an ongoing privatization of largest titanium mining and processing factory in Europe – United Mining&Chemical Company
- Ukraine's domestic consumption is near 10%. It is possible to process up to 50 thousand tons of concentrate into the sponge inside of the country with further refining to titanium metal abroad







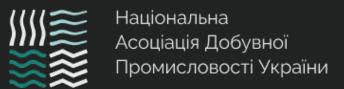






Lithium

- As of today lithium is not mined in Ukraine. Its reserves account for near a one third of those proven in Europe
- There are three explored fields with a lithium oxide content of 1.1–1.3% and one promising area for further exploration. There are also several lithium ore occurrences
- Implementation of one project at the stage of production and primary processing requires \$150-250 million of investments
- One petalite field is licensed by UkrLithiumMining LLC. The reserves are approved according to JORC classification





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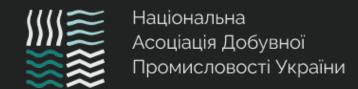






Rare and rare earth metals

- Rare and rare earth metals such as tantalum, niobium, and beryllium are known to exist in six fields. Tantalum and niobium extraction in non-commercial volumes is carried out only as a coproduct of titanium
- The projections of rare earth production are related to the development of the Novopoltavske apatite ore field and potentially several other ore occurrences
- There is one beryllium field in Ukraine (Perzhanske) with reserves of 15,3 thousand of BeO, containing also tantalum, niobium, zirconium, tin, molybdenum, lithium, zinc, etc. A production license for this deposit was issued in 2019 to the BGV Group





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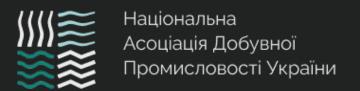






Cobalt

- There are 12 silicate nickel fields in Ukraine, which contain cobalt as a coproduct. The cobalt reserves are up to 9 thousand tons
- Ukraine's industry, precisely the Pobuzhsky ferronickel plant, imports nickel and cobalt raw materials
- The main prospects for the development of cobalt are related to Kapitanivske and Prutivske deposits, which have been operated by private investors since 2019





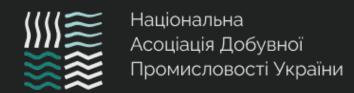






Graphite

- Ukraine is one of the world's five leading countries in terms of graphite reserves, which are about 19 million tons of ore with a natural graphite content of 5-8%
- The Ukrainian BGV Group and the Turkish ONUR Group are operators of 3 licenses. Several promising ore occurrences available for purchasing
- In order to develop the innovative potential of graphite, the European Commission initiated a scientific research program Graphene Flagship



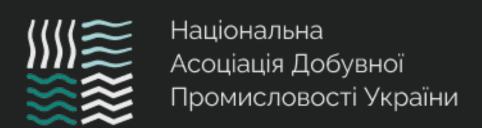








Graphite





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Сировина для інноваційних технологій Корисні копалини • Нікель Цирконій Графіт Хром Цинк Рубідій Цезій • Олово Берилій Літій Ітрій Вісмут Рідкісні землі (ітрієва група) Рідкісні землі Рідкісні землі (церієва група) • Ніобій Тантал Титан Скандій Сировина для імпортозаміщення Корисні копалини • Платина Кропивницький 引 X Інформація по перспективному рудопрояву Назва перспективного рудопрояву Іванівський Тип об'єкту Рудопрояв Корисна копалина Рідкісні землі Масштабувати до

Strategic minerals interactive map

- Licenses, 68
- Fields (reserves), 123
- Ore occurrences, 1004
- Applications for licenses



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The "Mining Front" project was created to restore the mining infrastructure destroyed by the war in Ukraine in order to counteract the consequences of the Russian invasion.

OUR GOAL

To provide donor financial and material assistance to Ukrainian mining companies that suffered as a result of hostilities in the course of Russia's aggressive war against Ukraine.

OUR VALUES

Voluntary, non-commercial, equal and mutual basis.

In order to restore the enterprise, priority in purchases will be given to Ukrainian manufacturers who will offer the most favorable price-quality ratio, and will also be able to fulfill orders in the shortest possible time.

OUR PARTNERS

It is assumed that assistance can be provided by international services and mining companies, and financial institutions. The consolidated funds will be used to restore infrastructure in the mining sector that was damaged or destroyed as a result of hostilities on the territory of Ukraine initiated by the Russian Federation.



OUR AREAS OF WORK



SEARCH FOR DONORS

We work with international financial institutions, the business community and representatives of the non-governmental and public sector, who are ready to help mining enterprises of Ukraine.



SEARCH FOR RESOURCES

We are collecting financial and material assistance for the purchase of necessary equipment for damaged or destroyed mining enterprises in Ukraine.

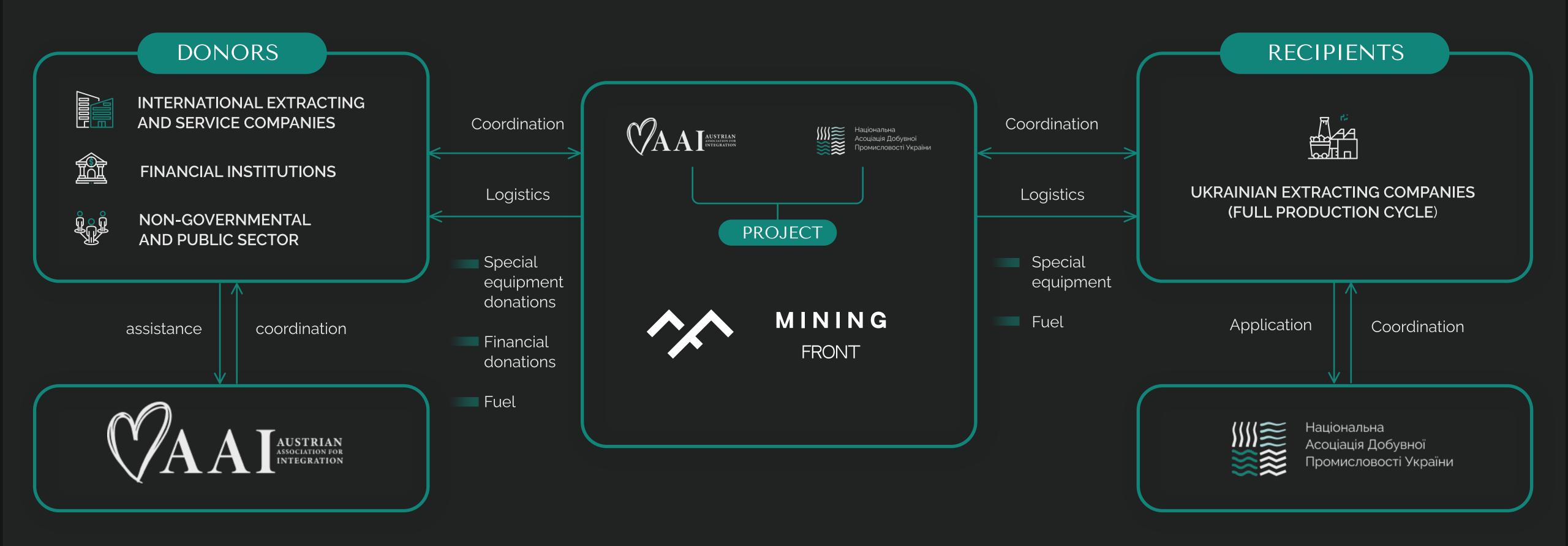


ORGANIZATION OF LOGISTICS

Transportation of donor aid.

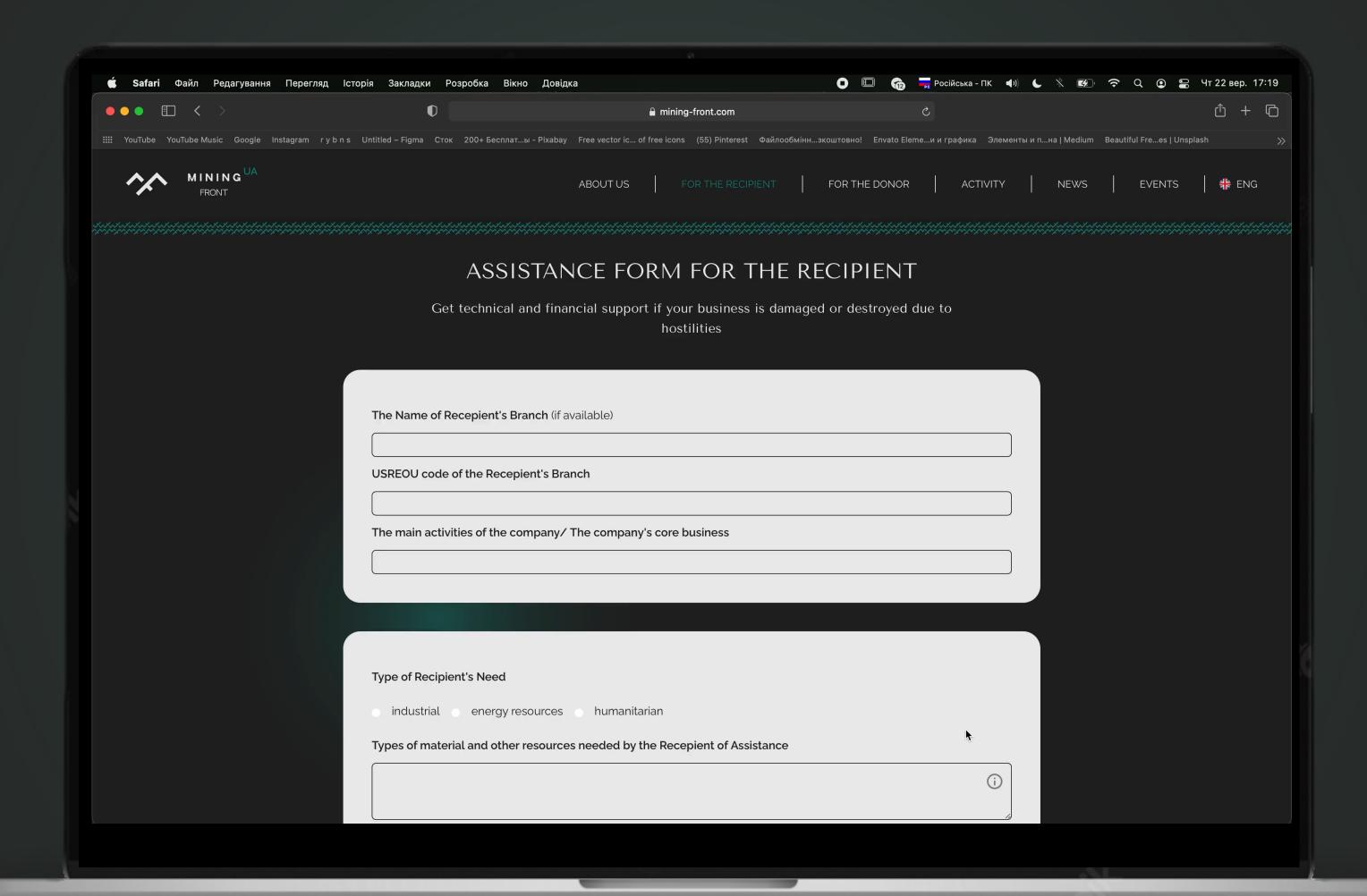


Tools for assisting with the Mining Front project





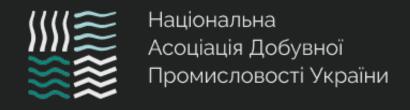
Detailing tools for RECIPIENTS

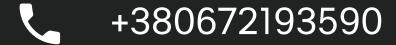




** KSENIA ORYNCHAK

CEO of the National Association of Extractive Industries of Ukraine Author and presenter of the news "Pro NADRA"

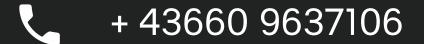






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THANK YOU FOR YOUR ATTENTION!