TMK

"UZBEKISTAN TECHNOLOGICAL METALS COMPLEX" JSC

CRITICAL RAW MATERIALS for the global supply chain

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Brochure Draft Outline:
TMK's Critical Raw Material Advantage

TMK: Powering the Global Supply Chain
for Critical Raw Materials

A state-backed platform transforming Uzbekistan into a strategic hub for secure, diversified CRM development.

TMK: A New Chapter in Global CRM Security

In a world increasingly defined by competition over strategic resources, Uzbekistan's Technological Metals Complex (TMK) emerges as a state-backed solution to global supply chain vulnerabilities. Today, the production and processing of critical raw materials (CRMs) remain highly concentrated in a handful of countries, creating volatility and long-term risk for industries that rely on secure access to these materials. TMK offers a compelling alternative: a vertically integrated CRM platform of unprecedented scale, supported at the highest levels of government. With more than 70 active projects across 25+ commodities, TMK provides a consolidated, investable ecosystem – shifting the model from fragmented global sourcing to a unified, strategic hub anchored in Uzbekistan.

Established in 2024 at the initiative of the President of the Republic of Uzbekistan, Shavkat Mirziyoyev, TMK was entrusted with the full development of the nation's CRM assets. This centralization reflects Uzbekistan's long-term industrial strategy to become a reliable supplier for the global energy transition, high-tech manufacturing, and critical infrastructure sectors. TMK spans the full value chain – from exploration and mining to refining and downstream manufacturing – creating a secure and streamlined environment for investment, partnership, and industrial collaboration. It is not just a company, but a platform designed to shape the next era of responsible CRM development.

At a time when global industries are actively seeking alternatives to existing supply chain dependencies, TMK stands out as a strategic opportunity – combining government-backed scale, geological diversity, and integrated operations to deliver stability where it is needed most.

DISCOVERY,

EXPLORATION & RESOURCE DEVELOPMENT

Unearthing Tomorrow's Resources

TMK's upstream strategy is built on a bold national mandate: to unlock the full potential of Uzbekistan's rich and underexplored geological base. Backed by substantial investment and state-led coordination, TMK is leading one of the most ambitious exploration and development programs in Central Asia. This program is focused on identifying, de-risking, and advancing a wide range of critical raw materials that are essential for the global energy transition, advanced manufacturing, and strategic technologies.

The upstream portfolio includes more than 70 assets spanning early-stage exploration through to advanced development. This includes:

- Operating mine at Ingichka Mine producing tungsten concentrate from historic tailings, with modernization underway to increase recovery and throughput
- Development-stage deposits such as Sarikul (Tungsten), Nurikon (Lithium), and Miskon (Copper-Molybdenum)
- Exploration campaigns across strategic zones such as the Karatapqa-Zirabulak depression (Manganese, Tungsten), “Lolabuloq” zone (Tantalum, Niobium), and oil and gas fields targeting Helium and Iodine
- Unconventional resources including coal ash waste for rare metals and silicon extraction

This diversity positions TMK as one of the most comprehensive CRM developers globally, with more than 25 critical commodities under evaluation — from tungsten, molybdenum, graphite, germanium, and cobalt to antimony, rhenium, vanadium, and the platinum group metals.

25+

Critical Raw Material Commodities

Tungsten
Molybdenum
Graphite
Vanadium
Lithium
Rubidium
Cesium
Germanium
Bismuth
Tantalum
Niobium
Berryllium
Selenium

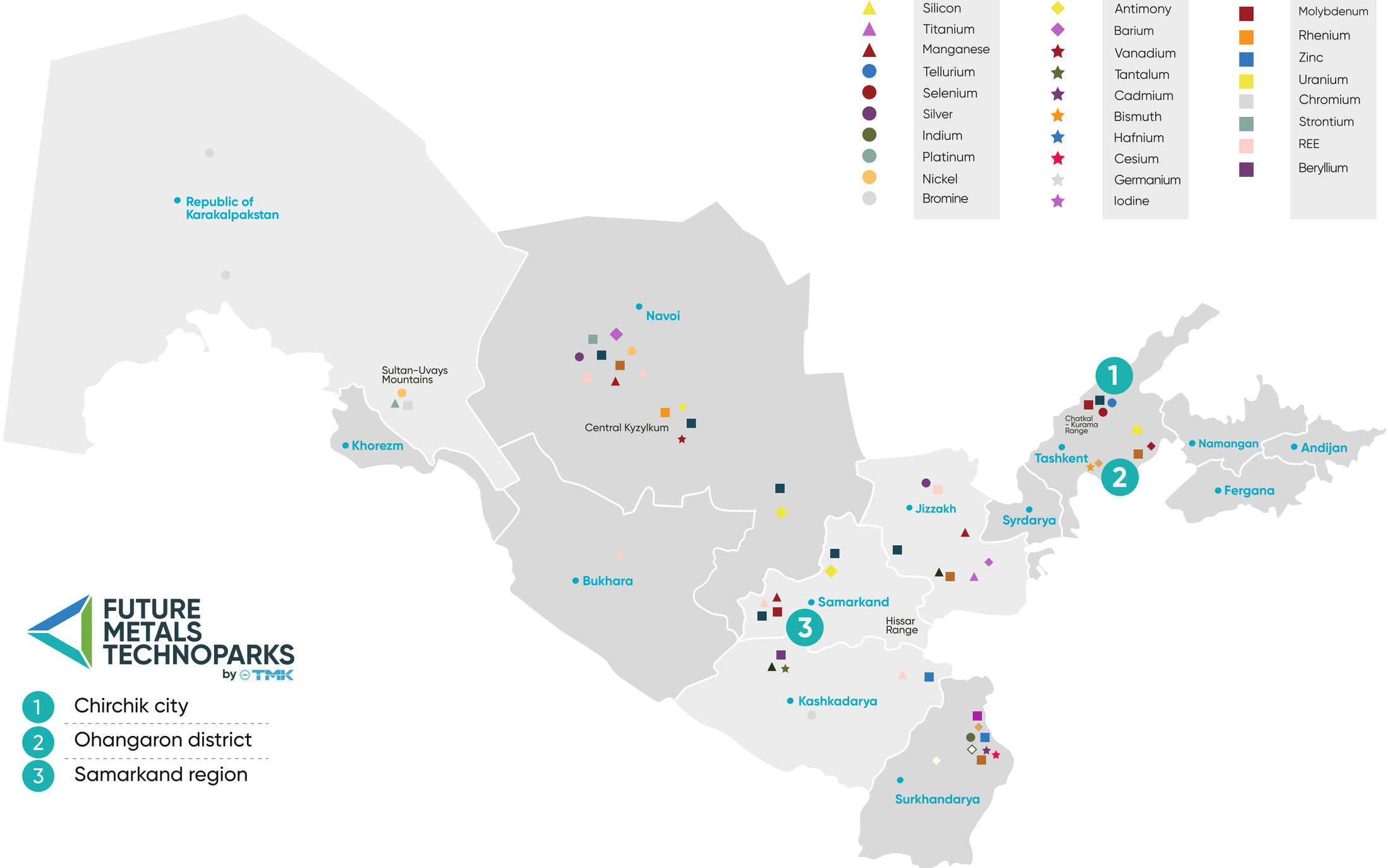
Rhenium
Copper
REE
Aluminum
Silicon
Magnesium
Manganese
Nickel
Cobalt
Chromium
Titanium
Tellerium

Republic of Uzbekistan
TMK`s Critical Raw Material (CRM) Assets

Legend	Metals
▲	Niobium
▲	Cobalt
▲	Graphite
▲	Silicon
▲	Titanium
▲	Manganese
●	Tellurium
●	Selenium
●	Silver
●	Indium
●	Platinum
●	Nickel
●	Bromine

Legend	Metals
◆	Copper
◆	Rubidium
◆	Aluminum
◆	Antimony
◆	Barium
★	Vanadium
★	Tantalum
★	Cadmium
★	Bismuth
★	Hafnium
★	Cesium
★	Germanium
★	Iodine

Legend	Metals
■	Lead
■	Lithium
■	Tungsten
■	Molybdenum
■	Rhenium
■	Zinc
■	Uranium
■	Chromium
■	Strontium
■	REE
■	Beryllium



FUTURE METALS TECHNOPARKS by TMK

1. Chirchik city
2. Ohangaron district
3. Samarkand region

Processing, Refining & Pilot Production

Building Value at the Source

TMK is investing in modern midstream capabilities to ensure that critical raw materials are not only extracted domestically but also refined and upgraded in-country. By developing high-purity metal production and recovery infrastructure, TMK is reducing reliance on external processors and creating new opportunities for value-added production within Uzbekistan.

The midstream portfolio includes:

- Tungsten and molybdenum midstream metals production facility, currently undergoing modernization to expand capacity and improve technological efficiency.
- Rare metal recovery at the Almalyk Copper-Molybdenum Shop, where high-purity molybdenum is extracted from copper concentrate.
- Silicon pilot production, utilizing coal ash waste from Angren Thermal Power Plants to develop new processes for metallurgical and high-tech applications.
- Technology development for vanadium and other rare metals at the Madani deposit, supporting TMK's innovation agenda and preparing for future scaling.

Modernization of **Tungsten and Molybdenum Production**

Rare Metal Recovery

Almalyk

Silicon Production from Ash

Angren

Vanadium and Rare Metals Technologies

Madani

These efforts are supported by a $200 million equity commitment from the Uzbekistan Reconstruction and Development Fund, reinforcing TMK's midstream vision: to convert raw resource potential into industrial capacity at the heart of Central Asia.

End-Product Manufacturing & Industrial Integration

From Resource to Product

TMK is expanding its capabilities beyond metal production to include the manufacturing of high-value finished goods. By leveraging internally sourced materials, TMK is creating the foundation for a domestic CRM-based manufacturing sector, positioned to serve both local and international markets.

Current downstream initiatives include:

- Tooling and wire manufacturing using tungsten and molybdenum alloys, enabling precision products for industrial and technological applications.
- Hard alloy plant modernization, with upgrades focused on expanding tungsten carbide production and improving process efficiency.
- Pilot projects in thin wire production, advanced components, and specialty parts designed for export markets and future scale-up.
- Manufacturing operations located within Special Economic Zones (SEZs), which provide operational benefits such as streamlined permitting and ready access to infrastructure.

This downstream integration ensures that the value of Uzbekistan's critical raw materials is not only captured at the source — but also converted into industrial output, technological relevance, and long-term economic resilience.

Future Vision: The TMK Hub Concept

A Regional Engine for CRM Transformation

TMK's Hub Concept is a phased development model that strategically integrates upstream and midstream operations into coordinated industrial zones. Each hub is designed to concentrate the value chain — where raw materials are extracted, processed into high-purity metals, and prepared for downstream manufacturing — all within a unified geographic footprint.

These hubs are located within Technoparks, which are officially designated Special Economic Zones (SEZs). In TMK's model, the Technopark is the SEZ, a zone that combines physical infrastructure with regulatory advantages such as streamlined permitting, tax incentives, and investor support. Within each Technopark, TMK develops the processing facilities, industrial services, and manufacturing capacity necessary to capture value at every stage of the CRM chain.

The Hub Concept is built around three key components:

- Integrated industrial hubs that co-locate upstream and midstream operations
- Technoparks (SEZs) that support downstream manufacturing and investment attraction
- Regional processing centers planned to serve upstream producers across Central Asia who currently lack midstream capacity

Initial hubs are under development in Chirchik, Ohangaron, Samarkand, and Jizzakh — locations selected for their infrastructure readiness and proximity to resource clusters. These hubs will form a nationally coordinated industrial backbone, positioning Uzbekistan as a critical link in the global CRM supply chain.

Commitment to Sustainability

Responsibility from the Ground Up

As a state-owned enterprise entrusted with the long-term development of Uzbekistan's critical raw materials sector, TMK operates with a clear mandate: to deliver industrial progress without compromising environmental, social, or governance standards.

TMK integrates ESG principles across every phase of its operations, from exploration and development to processing and industrial integration. This ensures not only compliance with global investor expectations, but also alignment with Uzbekistan's own goals for sustainable economic growth.

TMK's ESG approach includes:

- Environmental stewardship, including responsible waste management, water use, and emissions control
- Community engagement, focused on employment, local development, and educational partnerships
- Transparent governance, underpinned by SOE accountability and policy coordination with national institutions
- Alignment with international frameworks, including ongoing efforts to integrate best practices from global sustainability and reporting standards

Through this commitment, TMK aims to build not just an industrial base, but a legacy of responsible resource development that delivers value to both partners and future generations

Investment Opportunity & Strategic Partnerships

Why Partner with TMK?

Uzbekistan's Technological Metals Complex is more than a mining company, it is a national platform designed to meet global demand for secure, diversified, and responsibly developed critical raw materials. With full government backing, a vertically integrated model, and operations spanning more than 70 projects across 25+ commodities, TMK is ready to scale with the right partners.

We welcome engagement across the value chain:

- Technology and engineering providers seeking project partnerships
- Investors and ϕinstitutions looking to participate in the next phase of industrial growth
- End-users and manufacturers in search of long-term CRM supply, co-location opportunities, or regional expansion

Why partner with TMK?

- One of the most diversified CRM portfolios in the world
- SOE-led permitting and infrastructure advantages
- Operations located within Special Economic Zones (Technoparks) with full regulatory support
- A clear commitment to sustainability and global ESG expectations

Whether through joint ventures, offtake agreements, industrial participation, or strategic alignment — TMK offers a pathway to help shape the future of secure, responsible supply chains.

TMK's Critical Raw Material (CRM) Assets

DEVELOPMENT

Project	Metals	Region
Development of the "Sarikul" tungsten deposit	Tungsten	Samarkand
Development of the "Taskazgan" graphite deposit	Graphite	Bukhara
Preparation for development of the "Nurlikon" lithium deposit	Lithium	Tashkent
Preparation for development of the "Miskon" copper porphyry deposit	Copper, Molybdenum	Tashkent
Development of the "Sautboy" tungsten deposit	Tungsten	Navoi
Development of technology for extracting Vanadium, rare metals, and other associated components from uranium-vanadium ores of the "Madanli" deposit	Vanadium	Navoi
Development of metallic silicon production.	Silicon	Uzbekistan

PRODUCTION

Expansion of the volume of processing of fine-grained tungsten waste tailings	Tungsten	Samarkand
Development and implementation of a pilot technology for extracting valuable components from coal ash waste at the Angren and Yangi Angren Thermal Power Plants.	Silicon, Aluminum, Minor metals	Tashkent
Modernization of the tungsten alloy production plants (hard alloys)	Tungsten Carbide	Tashkent
Expansion of molybdenum and tungsten rods production	Molybdenum and Tungsten	Tashkent
Implementation of a pilot project for tungsten and molybdenum thin wire production	Tungsten and Molybdenum	Tashkent

EXPLORATION

Project	Metals	Region
Preparation for development of the "Daykali" deposit	Titanium	Jizzakh
Preparation for development of the "Sultonbobo" deposit	Nickel, Cobalt Chromium, Magnesium	Republic of Karakalpakstan
Identification of rare metal reserves based on international standards at the "Lolabuloq" prospective area	Tantalum, Niobium	Kashkadarya
Assessment of the current state of rare elements in underground industrial waters of oil and gas fields and identification of promising areas for them.	Lithium, Iodine, Bromine	Uzbekistan
Assessment of the prospects for obtaining helium and hydrogen from oil and gas fields.	Helium, Hydrogen	Uzbekistan
Identification of promising areas for critical minerals using geophysical and geochemical methods in the Karatepa-Zirabulak depression and conducting geological exploration work.	Tungsten, Manganese	Samarkand
Identification of new promising areas based on the analysis of the metallogenic potential and critical raw material opportunities of Western Uzbekistan	Platinum, Antimony, Cadmium, Manganese, Magnesium, Hafnium, Bismuth	Uzbekistan
Study of critical mineral raw materials in Shabrez - Sargardon	Lithium, Rubidium, Cesium, Indium, Cadmium, Copper, Lead, Zinc	Surkhandarya
Processing and synthesizing the results of geological - geochemical and geophysical works in the Chatkal - Kurama and Pskem regions using modern computer technologies.	Uranium, Bismuth	Tashkent
Creating modern and analytical geochemical maps and studying the composition of rocks. *Mountains and foothills of Molguzar and Southern Uzbekistan*	Titanium, Lithium	Jizzakh
Developing a technology for identifying and comprehensively assessing prospective objects for non-ferrous, rare, and precious metals.	Non-ferrous, rare and precious metals	Uzbekistan
Conducting exploration work for zinc and other minerals at the Sarchashma site of the Gilon ore field.	Zinc	Kashkadarya
Prospecting for gold, tungsten and other minerals in the Kamangaron ore field.	Tungsten	Samarkand
Prospecting for graphite and other mineral deposits in the Eastern Shaydaroz area of the Kuljuktau Mountains.	Graphite	Navoi
Conducting comprehensive exploration for rare earth elements and other mineral deposits at the Eastern Sautbay site.	Tungsten, Lithium	Navoi

EXPLORATION

Project	Metals	Region
Carrying out exploration work in the deep horizons and flanks of the Novka rare metal ore deposit.	Lithium	Jizzakh
Conducting exploration work for gold and other metals in the Novdaroz section of the Chakilkalyan Mountains.	Graphite	Kashkadarya
Conducting exploration for rare and rare earth metals, titanium, and other elements in the Bukantau, Kuljuktau, and Molguzar Mountains	Rare and Rare Earth Elements, Titanium	Navoi, Jizzakh
Magnesium assessment work at the Ziyokor, Arvaten, and Gazgan deposits.	Magnesium	Jizzakh and Navoi
Conducting assessment work and developing technology for tungsten extraction from ores and feasibility study at the Karakiya, Tamchali prospective area	Tungsten	Samarkand
Exploration and evaluation of graphite at the promising Sazagan and Zakhchakhona deposits.	Graphite	Samarkand, Kashkadarya
Exploration and evaluation of bismuth at the promising Kandagan and Karakiya areas.	Bismuth	Tashkent
Study of the presence of associated rare and scarce metals in the ores of deposits being developed by JSC "Navoi Mining and Metallurgical Combine."	Tungsten	Navoi

NEW CONSTRUCTION

Construction of sulfuric acid production plant.	Sulfuric acid	Navoi
Modernization of plants and facilities for production of rare metals in Navoi region.	Rhenium	Navoi
Construction of new hydrometallurgical plant for processing tungsten concentrate.	Tungsten	Samarkand
Construction of a new hydrometallurgical plants for processing of molybdenum roasted concentrate	Molybdenum	Tashkent

R&D

Development of technology for extracting associated metals from industrial waste at the "Kalmakyr" deposit of JSC "Almalyk Mining and Metallurgical Complex."	Molybdenum	Tashkent
Lithium battery assembly	Lithium	Tashkent
Development of pure selenium production	Selenium	Tashkent
Development of pure tellurium production	Tellurium	Tashkent
Development of extraction of non-ferrous and rare metals from washing acid of copper and zinc smelter	Molybdenum, Copper	Tashkent

R&D

Project	Metals	Region
Development of technology for extracting bismuth from lead-bismuth slags at the copper smelting plant of JSC "Almalyk Mining and Metallurgical Complex."	Bismuth	Tashkent
Development of technology for processing valuable components from industrial waste of the "Marjanbulak" gold extraction plant.	Barium	Jizzakh
Development of technology for extracting associated metals from industrial waste of Hydrometallurgical Plant No. 1 of JSC "Navoi Mining and Metallurgical Combine."	Nickel	Navoi
Development of technology for extracting associated metals from industrial waste of Hydrometallurgical Plant No. 2 of JSC "Navoi Mining and Metallurgical Combine."	Strontium, Tungsten	Navoi
Development of technology for extracting associated metals from industrial waste of Hydrometallurgical Plant No. 3 of JSC "Navoi Mining and Metallurgical Combine."	REE, Antimony	Navoi
Development of technology for extracting associated metals from technogenic waste of Hydrometallurgical Plant No. 4 of JSC "Navoi Mining and Metallurgical Combine."	Barium	Navoi
Development of technology for extracting associated metals from technogenic waste of Hydrometallurgical Plant No. 5 of JSC "Navoi Mining and Metallurgical Combine."	Manganese, Barium	Navoi
Development of technology for extracting associated metals from technogenic waste of Hydrometallurgical Plant No. 6 of JSC "Navoi Mining and Metallurgical Combine."	Strontium	Navoi
Processing of technogenic waste from the Chirchik Molybdenum and Tungsten Hydrometallurgical plants.	Molybdenum and Tungsten	Tashkent

VALUE ADDED PRODUCTS

Establishment of rhenium metal production facility	Rhenium	Tashkent
Development of car parts production based on powder metallurgy	Steel powder, copper	Tashkent
Development of drill bit production	Tungsten	Tashkent
Production of roller cone drill bits	Tungsten	Tashkent
Production of carbide drills and milling cutters	Tungsten	Tashkent
Implementation of pilot technology for coating carbide metalworking tools	Titanium	Tashkent

TMK

"UZBEKISTAN TECHNOLOGICAL METALS COMPLEX" JSC

We have all necessary capabilities to transform our region into a hub for the production of high value-added goods from minerals

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