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How Can We Remedy America's Metals, Minerals, & Materials Misery ?

New Mexico Tech
February 10, 2020



America's Net Import Reliance 2019

<u>Commodity</u>	<u>Percent</u>	<u>Major import sources (2015-18)²</u>
ARSENIC (all forms)	100	China, Morocco, Belgium
ASBESTOS	100	Brazil, Russia
CESIUM	100	Canada
FLUORSPAR	100	Mexico, Vietnam, South Africa, China
GALLIUM	100	China, United Kingdom, Germany, Ukraine
GRAPHITE (natural)	100	China, Mexico, Canada, India
INDIUM	100	China, Canada, Republic of Korea, Taiwan
MANGANESE	100	South Africa, Gabon, Australia, Georgia
MICA, sheet (natural)	100	China, Brazil, Belgium, Austria
NEPHELINE SYENITE	100	Canada
NIOBIUM (columbium)	100	Brazil, Canada, Russia, Germany
RARE EARTHS ³ (compounds and metal)	100	China, Estonia, Japan, Malaysia
RUBIDIUM	100	Canada
SCANDIUM	100	Europe, China, Japan, Russia
STRONTIUM	100	Mexico, Germany, China
TANTALUM	100	Rwanda, Brazil, Australia, Congo (Kinshasa)
YTTRIUM	100	China, Estonia, Republic of Korea, Japan
GEMSTONES	99	India, Israel, Belgium, South Africa
BISMUTH	96	China, Belgium, Mexico, Republic of Korea
TELLURIUM	>95	Canada, China, Germany
VANADIUM	94	Austria, Canada, Russia, Republic of Korea
TITANIUM MINERAL CONCENTRATES	93	South Africa, Australia, Canada, Mozambique
POTASH	91	Canada, Russia, Belarus, Israel
DIAMOND (industrial stones)	88	India, South Africa, Botswana, Australia
BARITE	87	China, India, Morocco, Mexico
ZINC (refined)	87	Canada, Mexico, Australia, Peru
TITANIUM (sponge)	86	Japan, Kazakhstan, Ukraine, China, Russia
ANTIMONY (metal and oxide)	84	China, Thailand, Belgium, India
RHENIUM	82	Chile, Germany, Kazakhstan, Canada
STONE (dimension)	81	China, Brazil, Italy, Turkey
COBALT	78	Norway, Japan, China, Canada



From A to Z : Arsenic to Zirconium

TIN (refined)	77	Indonesia, Malaysia, Peru, Bolivia
ABRASIVES, fused Al oxide (crude)	>75	China, Hong Kong, France, Canada
BAUXITE	>75	Jamaica, Brazil, Guinea, Guyana
CHROMIUM	72	South Africa, Kazakhstan, Russia
PEAT	70	Canada
SILVER	68	Mexico, Canada, Peru, Poland
GARNET (industrial)	64	Australia, India, South Africa, China
PLATINUM	64	South Africa, Germany, Italy, Russia
ALUMINA	54	Brazil, Australia, Jamaica, Canada
MAGNESIUM COMPOUNDS	52	China, Canada, Australia, Hong Kong
ABRASIVES, silicon carbide (crude)	>50	China, South Africa, Netherlands, Hong Kong
GERMANIUM	>50	China, Belgium, Germany, Russia
IODINE	>50	Chile, Japan
IRON OXIDE PIGMENTS (natural and synthetic)	>50	China, Germany, Brazil, Canada
TUNGSTEN	>50	China, Bolivia, Germany, Spain
DIAMOND (industrial dust, grit, and powder)	50	China, Ireland, Republic of Korea, Russia
CADMIUM	<50	China, Australia, Canada, Peru
MAGNESIUM METAL	<50	Israel, Canada, Mexico, United Kingdom
NICKEL	47	Canada, Norway, Australia, Finland
SILICON (metal and ferrosilicon)	41	Russia, Brazil, Canada
MICA, scrap and flake (natural)	37	Canada, China, India, Finland
COPPER (refined)	35	Chile, Canada, Mexico
PALLADIUM	32	South Africa, Russia, Germany, Italy
LEAD (refined)	30	Canada, Mexico, Republic of Korea, India
SALT	29	Chile, Canada, Mexico, Egypt
PERLITE	28	Greece, China, Mexico
LITHIUM	>25	Argentina, Chile, China
BROMINE	<25	Israel, Jordan, China
SELENIUM	<25	China, Philippines, Mexico, Germany
ALUMINUM	22	Canada, Russia, United Arab Emirates, China
IRON and STEEL	21	Canada, Brazil, Republic of Korea



2019 Net Import Reliance (2018)

USGS Tracks 93 (97) Mineral Commodities

- 100 % Dependent on 17 (21)
- ≥ 50 % Dependent on 30 (29)
- ≥ 25 % Dependent on 11 (14)
- ≤ 25 % Dependent on 18 (17)
- Net Exporter of 17 (16)



Double the Trouble

- 47 Metals, Minerals, & Materials \geq 50 % Imports
- Unfriendly, Unstable, & Unsavory Governments
- China : 25 Specialty Metals & Industrial Minerals
- Russia : 10 5 Major Metals & 1 Ag Mineral
- S. Africa : 7 4 Major Metals & 1 Industrial Mineral
- Bel, Bol, Con, Gab, Geo, Gui, Kzk, Moz, Phi, Rwd



Mountain Pass REE Mine, California





National Defense Stockpile

- Essential for Defense : Military & / Or Industrial
- Not Sufficiently Available in the USA
- Materials Capable of Stockpiling
- Dependent on 47 Commodities / Stockpiles of 14
- 1956 : \$10.4 billion 2019 : \$1.0 billion (\$1.2)



Near - Sighted US of A Policy

- 18 Critical Materials in Stockpile (2016)
- China Dependent : 7 of 25
- Russia Dependent : 3 of 10
- South Africa Dependent : 4 of 7
- Selling Cr : 69 % from S Af, Rus, Kzk
- Selling Mn : 100 % from Gab, Gui, Geo, Aus
- Selling W03 : >50 % from China, Bol, Ger, Spn



National Defense Stockpile Materials Plan 2016

Potential Acquisitions		
<u>Material</u>	<u>Unit</u>	<u>Quantity</u>
Boron Carbide	LB	65,000
High Modulus High Strength Carbon Fibers	MT	4.5
Cadmium Zinc Telluride substrates (CZT)	cm ²	16,000
Dysprosium Metal	MT	0.5
Ferro-niobium	MT	104.5
Germanium Metal	kg	1,600
Lithium Cobalt Oxide (LCO)	kg	300
Lithium Nickel Cobalt Aluminum Oxide (LNCAO)	kg	1,080
Mesocarbon Microbeads (MCMB)	kg	1,296
Triamino-Trinitrobenzene (TATB)	LB	16,000
Tantalum	LB Ta	46,750
Tungsten-3 Rhenium Metal	kg	2,500
Yttrium Oxide	MT	10

Potential Disposals/Sales/Upgrades		
<u>Material</u>	<u>Unit</u>	<u>Quantity</u>
Beryllium Metal	ST	15.5
Chromium, Ferro	ST	23,500
Chromium, Metal	ST	200
Manganese, Ferro	ST	50,000
Manganese, Metallurgical Grade	SDT	322,025
Platinum	Tr Oz	8,380
Platinum-Iridium	Tr Oz	489
Tin	MT	804
Tungsten Metal Powder	LB W	77,433
Tungsten Ores & Concentrates	LB W	3,000,000
Zinc	ST	7,339



Trump Administration : Critical Minerals

- December 2017, May 2018, June 2019
- 35 Minerals Designated as “Critical”
- China : Major Supplier of 21
- Russia : Major Supplier of 7
- South Africa : Major Supplier of 7
- Uranium : 40% from Kzk, Rus, Uzb



35 Critical Minerals : **China**, Russia, **S Africa**

He

Li, Be, **C**, **F**

Mg, **Al**

K, **Sc**, **Ti**, **V**, **Cr**, **Mn**, **Co**, **Ga**, **Ge**, **As**

Rb, **Sr**, **Zr**, **Nb**, Re, **PGMs**, **In**, Sn, **Sb**, **Te**

Cs, **Ba**, **REEs**, Hf, Ta, **W**, **Bi**

U



CFIUS : What the Hell is That ?

- Committee on Foreign Investment in the United States
- Reviews Foreign Investment for National Security
- 16 Executive Branch Departments & Agencies
- Companies Notify CFIUS of FDI (**Voluntary**)
- Operates in Complete **Secrecy**
- President : Final Authority to Approve or Block



Why Should We Care ?

- Did Not Oppose Union Oil Takeover by CNOOC
- Magnequench Sale to Sextant Group (REE Magnets)
- Uranium One Sale to Rosatom (WY ISR Mines)
- **Cabot Corp** Specialty Fluids Sold to Sinomine
- Department of Interior (**USGS**) Not Included



Tanco Pegmatite Mine, SE Manitoba





The Curious Case of Critical Cesium

- Cabot Corporation : World Monopoly of Cs
- Controlled Mine - to - Market Supply Chain
- Tanco Mine, Manitoba : 85% of Cs + Ta
- Sinclair Pollucite Deposit Western Australia
- 135 Proprietary Technologies for Cs Compounds
- Cesium Formate Brines : Deep O & G Drilling
- Sold to Sinomine : June 30, 2019; CFIUS ?



How Did We Sink into This Quagmire ?

Deep State Government

- Executive Branch : Clinton - Bush Jr - Obama
- Legislative Branch : Mineral Withdrawals
- Judicial Branch : Environmental Lawsuits

Mining Companies

- Insufficient & Ineffective Lobbying
- Domestic Opposition : Moved Offshore



How Can Gov't Remedy the Situation ?

- Rollback Mineral Withdrawals (59 % of Fed Lands)
- Restore Multiple Use & Access
- Revamp Regulations for Responsible Development
- Streamline Permitting with Hard Deadlines
- Reject Frivolous Lawsuits by NGO Lobby
- Improve Communications Between Bureaucracies
- Anti-Dumping, Sanctions, & Trade Tariffs



How Can Gov't Remedy the Situation ?

- Revamp CFIUS - Foreign Acquisition Reviews
- Demand Bureaucrats Communicate & Cooperate
- Develop “Can-Do” versus “Can’t-Do” Attitudes
- Establish Lead Agency: Avoid Permit Duplications
- Cooperate with Our North American Neighbors
- Develop Mine - to - Market Supply Chains
- Appoint Pro - Capitalism / Pro - Development Judges



What Gov't Should **Not** Do

Legislative Branch:

- Fund More Committees, Studies, & Reports
- Onerous Revisions of Mining Law of 1872

Executive Branch:

- Commission More Multi - Agency Bureaucracies

Judicial Branch:

- Allow Lawyers to Make Work for More Lawyers



Miners, Speculators, & Philanthropists

- Proactive Lobbying : Local, State, Federal
- Fund Venture Capital & Private Equity
- Focus on Small Market Specialty Metals
- Develop Mine - to - Market Supply Chains
- Do Not Foster Business with Our Enemies
- **America First** : Domestic Resource Nationalism

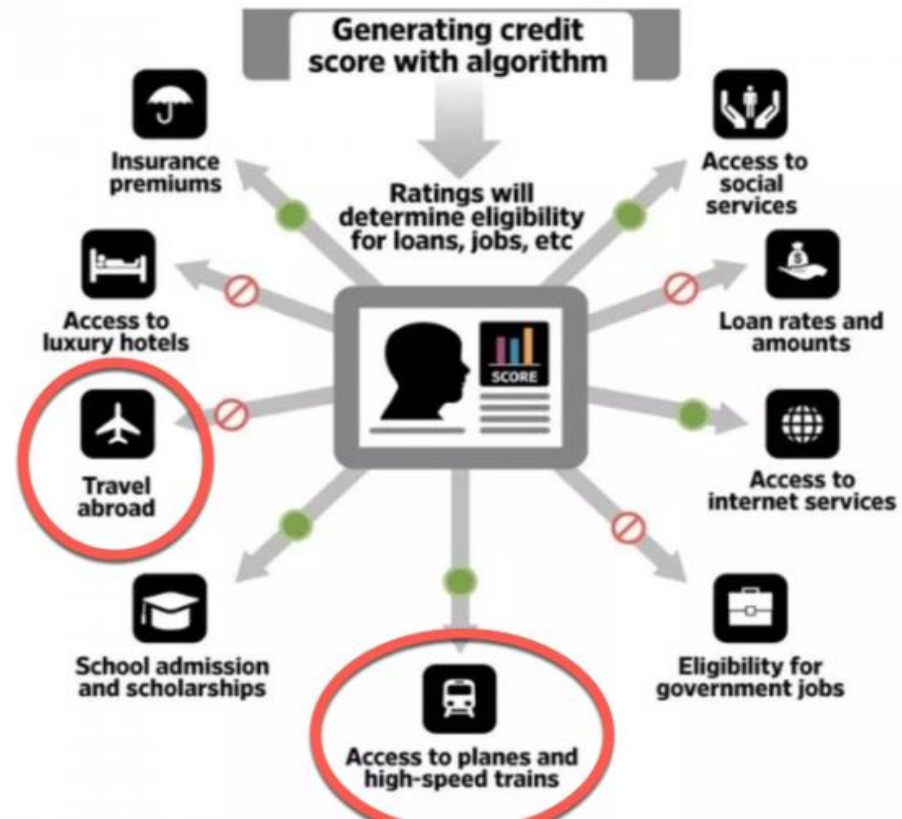


What Is at Stake ?

- Resource Wars : Our Lifetimes or Our Progeny's
- American Individual Rights & Republican Ideals
- A “Free Market” Capitalist Economy
- Our First World Standard of Living versus ...
- Centrally - Planned Command Economy
- Collective Committee of Chinese Communists
- Socio - Fascist - Statist Control of Our Daily Lives

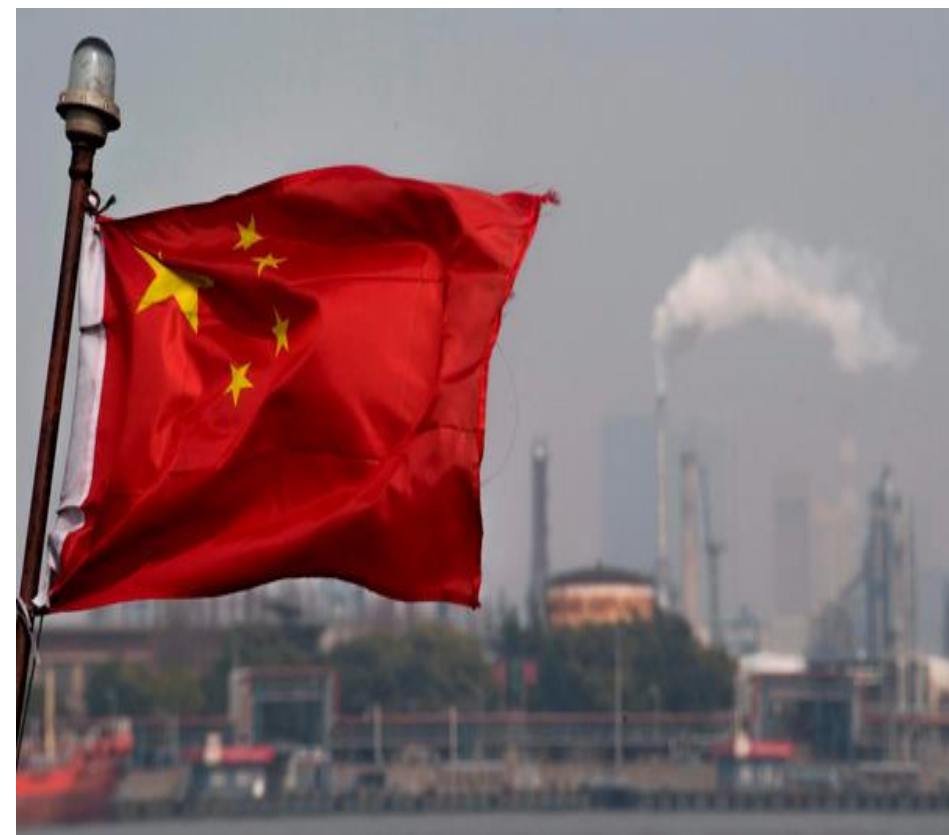


Serf Control via Social Credit Score





The Choice Is Yours, Mine, & Ours ...





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Monday Morning Musings from Mickey the Mercenary Geologist





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