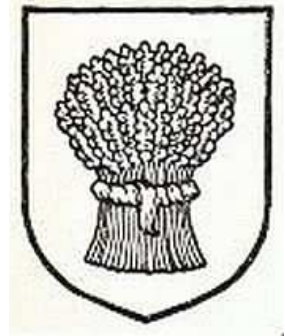


November 20, 2022



HALLGARTEN & COMPANY

Thinkpiece

Editor: Christopher Ecclestone
cecclestone@hallgartenco.com

Soviet Resource Classification: Back in the USSR?

November 2022

Soviet Resources

Back in the USSR?

- + A legacy of work by Eastern Bloc geologists/engineers provides a potential trove of treasure maps for mine developers with little work needed to move projects directly to development
- + Vast amounts of research and exploration was undertaken during the Communist period within the Eastern bloc nations and is still available
- + The imperative was usefulness of a metal to the State, not the “imperatives of the promote” which drives so much senseless exploration in the West
- + The work was frequently undertaken with little concern for cost with high-level exploration techniques (such as exploratory adits) rather than just drilling
- + Definitions of economic (or not) should be seen in the light of reigning prices at the original time of publication and the political context
- + Cut-offs for resource estimation were not driven by price, but economic interest/need of the Bloc for a certain mineral
- ✗ Historic Eastern Bloc resources are belittled by a mining establishment, driven by the cabal of consultants and their fellow-traveller exchanges/regulators
- ✗ Some of the exploratory efforts were overinvested (sound familiar?) due to the diktats (literally) of the state
- ✗ Western observers are smug in regarding a deposit being put into “mineral inventory” implying lack of viability, when it actually meant a lower priority for immediate exploitation

Measure for Measure

It's not like Canadians to be pompous, but frankly their *Holier than Thou* touting of NI41-101 as the best thing since sliced bread is rather tedious. The JORC standard is perfectly fit for purpose and yet you don't see ASX or LSE companies wandering the streets with a copy of it under their arm like Mormon missionaries trying to convert the uncommitted.

We need to ask the fundamental question, “Did NI43-101 turn Vancouver into a haven of virtue from the low-lives and scamsters that were formerly its denizens?”. If your answer is “yes” then you'd better “Get thee to a nunnery, Pollyanna” to mix some metaphors.

A Worthy Survivor of the Soviet Age?

One of the more outrageous things we have seen in recent years is the breezy waving of the hand dismissing any mention of Soviet resource classifications. Our first encounter with Soviet resource

November 20, 2022

classifications was in Albania early last decade. Our interest was in Chromite deposits. We reported to investors that when the Albanian government auctioned off properties these were deposits/resources not exploration territory. This was greeted by great scepticism. How could the state have spent all that money definition a Measured resource without some suckers (sorry, investors) pushing them to do so. Well, we explained, they had armies of geos to keep employed and they wanted to know what Chromite resources they had to blandish at the Chinese (Enver Hoxha's bulwark against Moscow's bear hug). Can you think of a better reason to define a resource of a country's major export?

Likewise we were recently looking at some Slovakian assets and noted that enormous effort had been expended on "exploration adits" (in the 1949-1989 period) to prove up the economics of the resource. This goes to show that "money" was no object to identify a resource in Eastern Bloc countries whereas nowadays much of the money goes into feathering the nests of consultants rather than into the ground.

The other bugbear (bears again!) is that, of course, old ex-Comecon area resources are historic. Now word has got around on Bay Street that regulators don't like "historic" resources because they don't keep consultants in the luxury to which they are accustomed. And regulators and consultants are joined at the hip in Canada. In theory everywhere (in the age of the spreadsheet macro) one should be able to change a cut-off or the metals prices that feed the cut-off decision and *voila*, resource recalculated! But no, that would not make money for consultants (though this is all they do in their smokey backrooms).

Thus a Soviet-style resource is anathema to one to the gatekeepers (sorry, consultants) that are the only ones who know the incantations required to make a NI43-101 out of thin air. One of the issues for them with Soviet resources is incompatibility. But if they bothered to educate themselves then in broad terms, the translation is simple.

The mapping is shown in a generalized form in the graphic below with the added detail of how these then represented as reserves:

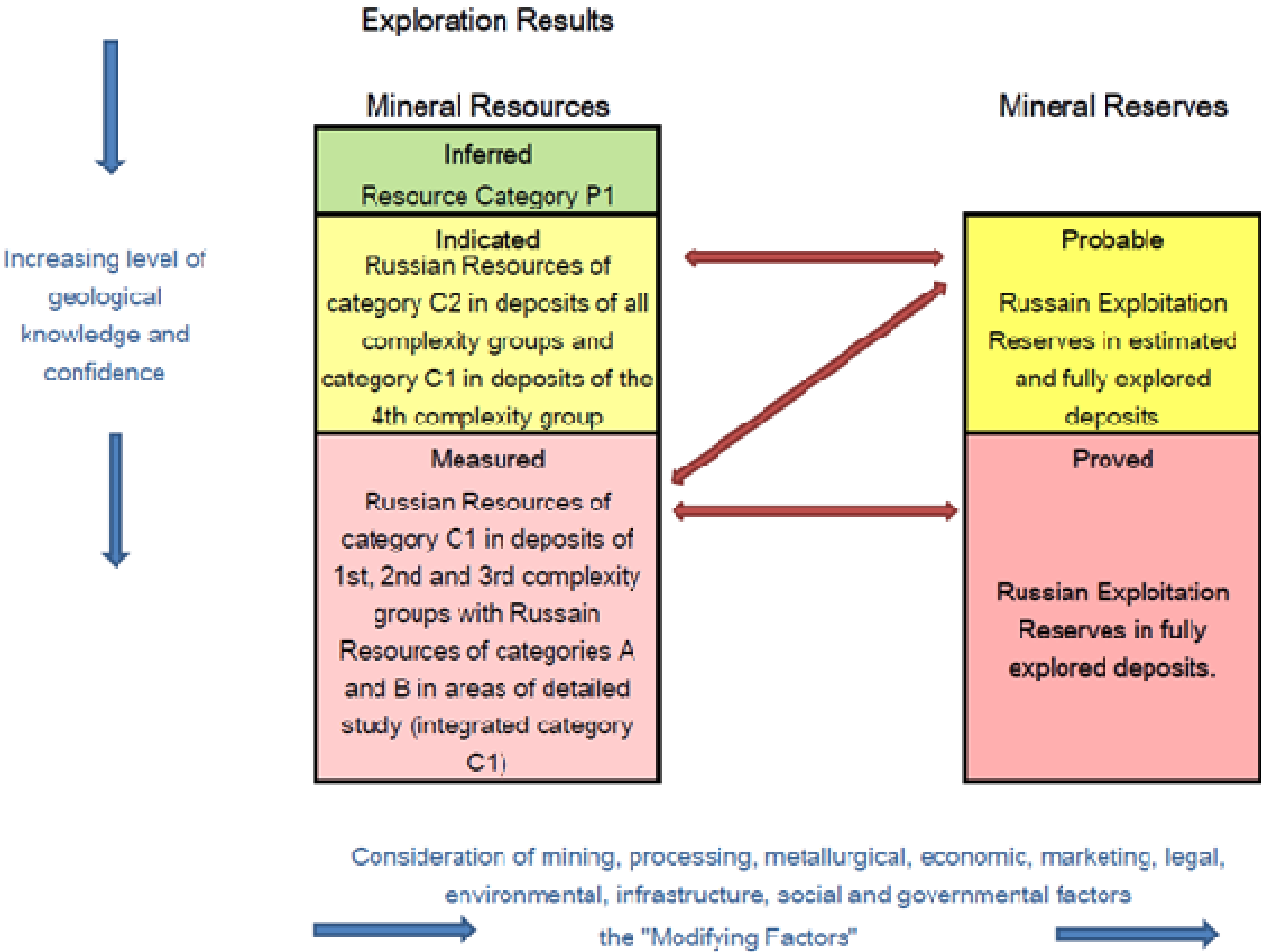
Russian categories map to mineral resources in the following manner:

- C1, B, A map to Measured Mineral Resources
- C2 maps to Indicated Mineral Resources
- P1 maps to Inferred Mineral Resources

Hmmm, rocket science this is not...

There are nuances though as in more complex deposits (Russian "complexity class 4") there will be relatively little C1 material and this will map to Indicated Mineral Resources.

The Russian P2 and P3 categories of "prognostic resources" have no CRIRSCO equivalent, and express more general concepts of mineral potential of a region. But dare we say it the increasingly used "Target Resource" of ASX-listed miners (which gives Canadian consultants sleepless nights should it ever catch on) would seem to be somewhat like these P2 and P3 categories.



Source: Russian Code for Public Reporting of Exploration Results, Mineral Resources, Mineral Reserves (NAEN Code) (2011)

The best explanation of all this we have found is in an article “New guidelines for international reporting of Russian mineral resources and reserves” by Stephen Henley published in November of 2010.

He explains that often C2 and C1 resources are quoted, but they are “authors’ estimates” and have not been registered with GKZ (the State Commission on Mineral Reserves). These have therefore not passed through the associated “expert review” independent audit which can, and does, modify reported figures. For this reason, it is not recommended in Henley’s view that these authors’ estimates be converted to higher than the Inferred category.

The role of CRIRSCO

CRIRSCO, which was formed in 1994 under the auspices of the Council of Mining and Metallurgical Institutes (CMMI), was established as a grouping of representatives of organisations that are responsible for developing mineral reporting codes and guidelines in Australasia (JORC), Canada (CIM), Chile (National Committee, from 2004), Europe (Pan-European Reserves Committee or PERC), Russia (NAEN/OERN, from 2011), South Africa (SAMREC) and the USA (SME).

It is important to note that the CRIRSCO standards, which include PERC, JORC, and the Canadian CIM standard among others, were developed for public reporting by companies listed on stock exchanges to provide a consistent terminology as well as quality assurance in company estimates of mineral resources and reserves.

UNFC

The United Nations Framework Classification (UNFC) is a different, but similar, beast. The United Nations classification was developed to provide an all-inclusive system that could be used for mineral inventories and minerals policy planning by governments and companies alike. Where the two systems overlap, CRIRSCO provides the detailed specifications for the corresponding UNFC categories.

Attempts to Align

A working party was set up in 2006 by CRIRSCO and GKZ. This was managed by PERC, on behalf of CRIRSCO, with the Chairman being Mike Armitage and the Secretary/convenor being Steve Henley. The members were drawn from the GKZ, CRIRSCO and the Russian and international mining industry.

There was a meeting in Moscow, 21-22 October 2008, with representatives of the GKZ, CRIRSCO, and Russian industry.

The upshot of this was a protocol signed on the 22nd of October 2008 by Niall Weatherstone (CRIRSCO chairman) and Yuri Podturkin (GKZ chairman) agreeing principles.

Defining “Economic”

The biggest irony is that the Soviet system used to focus on economic deposits. The ultimate goal of the

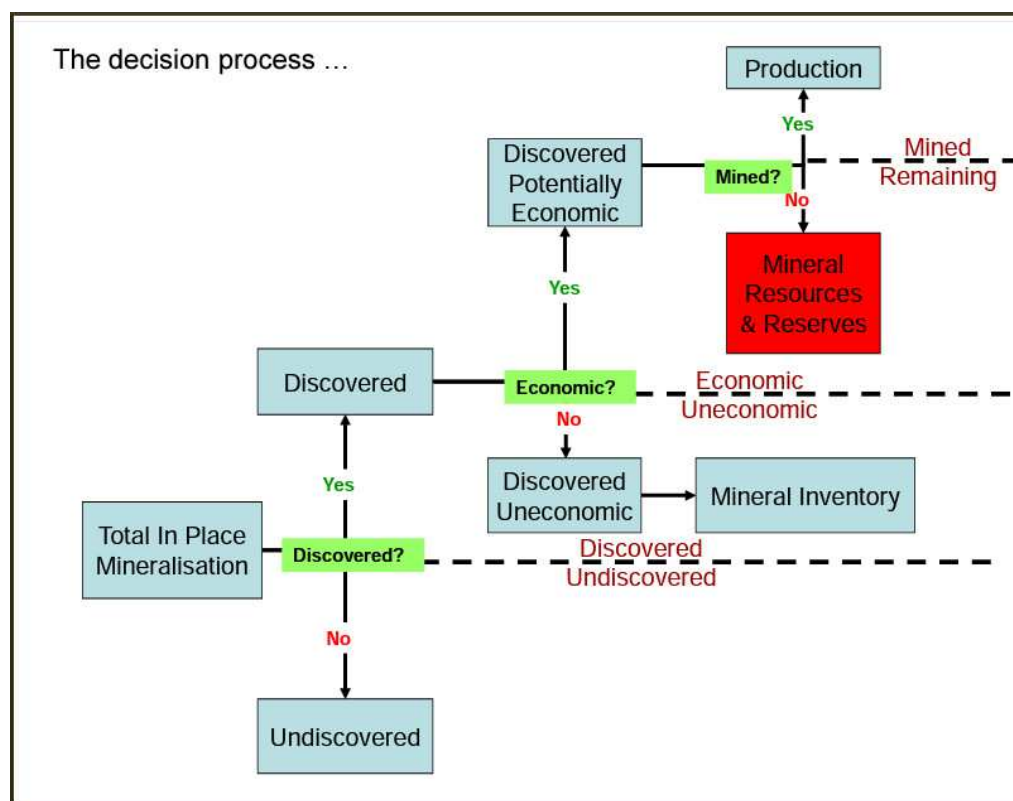
exercise was to find a mine worth mining. This was all for the good of the proletariat, or at least to keep the *nomenklatura*'s children in blue jeans and their wives able to buy hair dye that didn't make it all fall out.

When we published our thoughts on this subject several months ago rightly pointed out that being economic (i.e. making a profit or breaking even) was not necessarily a Comecon priority.

It is important to note that being classified as not "economic" did not (or does not) doom a project to oblivion but instead it goes into Mineral Inventory. Changing prices for metals or extraction costs/methods can very well move the deposit at some future date into the "economic" category.

However "economic" is a worthy goal. PEAs and PFSs produced by the grinding papermills of consultantdom all have a section on economics but how frequently do these come undone? Moreover is the goal to actually produce an economic mine or produce a document that persuades the investing public if all planets align and vast amounts of capex are splurged then their might be a mine that makes money if all planets and constellations align.

The chart that follows shows the decision process....



How many fantastic M&I resources have Western (particularly Canadian) investors seen that are totally uneconomic? The Golden Triangle in Northern BC is the happy hunting ground of M&I resources that are

destined to stay in the ground. How many projects in the last 15 years have been deemed economic and yet still remain on the drawing board.

Lingering Influence

As most of the mining ministries in the ex-Eastern Bloc are populated by veterans of that era or were students of academics from that era, the Soviet classifications are still the gold standard. This presents a delightful and poignant challenge. So while a “Western” mining executive may belittle the system and sing the praises of JORC or NI43-101, he is more than likely having to restate his resource and other aspects of his mine plan into the Soviet classifications when he makes a mining licenses application.

This then implies that the dirty little secret for many of these companies is that they too also possess a (non-historic) resource couched in the terms of the Soviet Resource Classification hidden out of sight somewhere that they have used, or are using, to advance a mining permit application.

Competence

Even the definition of the Russian “Competent Expert” was surprisingly similar, in Henley’s view, to that of the (Canadian) Qualified Person or (international) Competent Person (QP/CP), although the more prescriptive Russian system allows less scope for professional judgement.

However a glance at Schedule A of NI43-101 shows that none of the geologists associations of the former Eastern Bloc countries are on the approved list. The closest it comes is conceding competence to the European Federation of Geologists (EFG). This Brussels based entity has 27 member countries representing more than 45,000 geoscientists as members. Their definition states that “The European Geologist (EurGeol) title is a professional title awarded by the European Federation of Geologists which recognises the ability to deliver a high quality of services within the practice of geology. This certification held by a professional geologist means that the holder has achieved suitable academic training and a level of professional experience, skill and competence to perform tasks within their professional practice”.

Conclusion

Perish the thought that a geological report using Soviet-style resource classifications might be less subjective and more objective than a Canadian one...

A creeping superiority complex has invaded the denizens of the mining equity markets over the past two decades, with Canada being particularly prone to viewing the world as pre-Bre-X and post- Bre-X. We even heard one corporate executive belittling a past resource done by BHP on their property, on the sole basis that it was historic. As if BHP were using a divining rod for their exploratory efforts.....

Having pressed various geologists and veterans of the Eastern sphere as to what problems they have found with Soviet style classifications, the best we could get were mumblings about the “economic” category which of course is dictated not only by extant prices (making a mine viable or not) or whether

Sunday, November 20, 2022

the State at that time wanted the mineral in question.

It is more interesting to ponder the hypothetical as to how many qualified persons (people?) in the Canada/Australian orbit could put their reputations on the line by stating whether projects with NPVs lower than their CapEx are actually economic. The cost of capital usually puts these projects into permafreeze. We suspect if CPs/QPs did have this requirement, projects would be dropping like flies. And of course, the consultants would be out of a job.... Something that did not happen on the other side of the Wall pre-1989.

Important disclosures

I, Christopher Ecclestone, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Hallgarten's Equity Research rating system consists of LONG, SHORT and NEUTRAL recommendations. LONG suggests capital appreciation to our target price during the next twelve months, while SHORT suggests capital depreciation to our target price during the next twelve months. NEUTRAL denotes a stock that is not likely to provide outstanding performance in either direction during the next twelve months, or it is a stock that we do not wish to place a rating on at the present time. Information contained herein is based on sources that we believe to be reliable, but we do not guarantee their accuracy. Prices and opinions concerning the composition of market sectors included in this report reflect the judgments of this date and are subject to change without notice. This report is for information purposes only and is not intended as an offer to sell or as a solicitation to buy securities.

Hallgarten & Company or persons associated do not own securities of the securities described herein and may not make purchases or sales within one month, before or after, the publication of this report. Hallgarten policy does not permit any analyst to own shares in any company that he/she covers. Additional information is available upon request.

© 2022 Hallgarten & Company Limited. All rights reserved.

Reprints of Hallgarten reports are prohibited without permission.

Web access at:

Research: www.hallgartenco.com