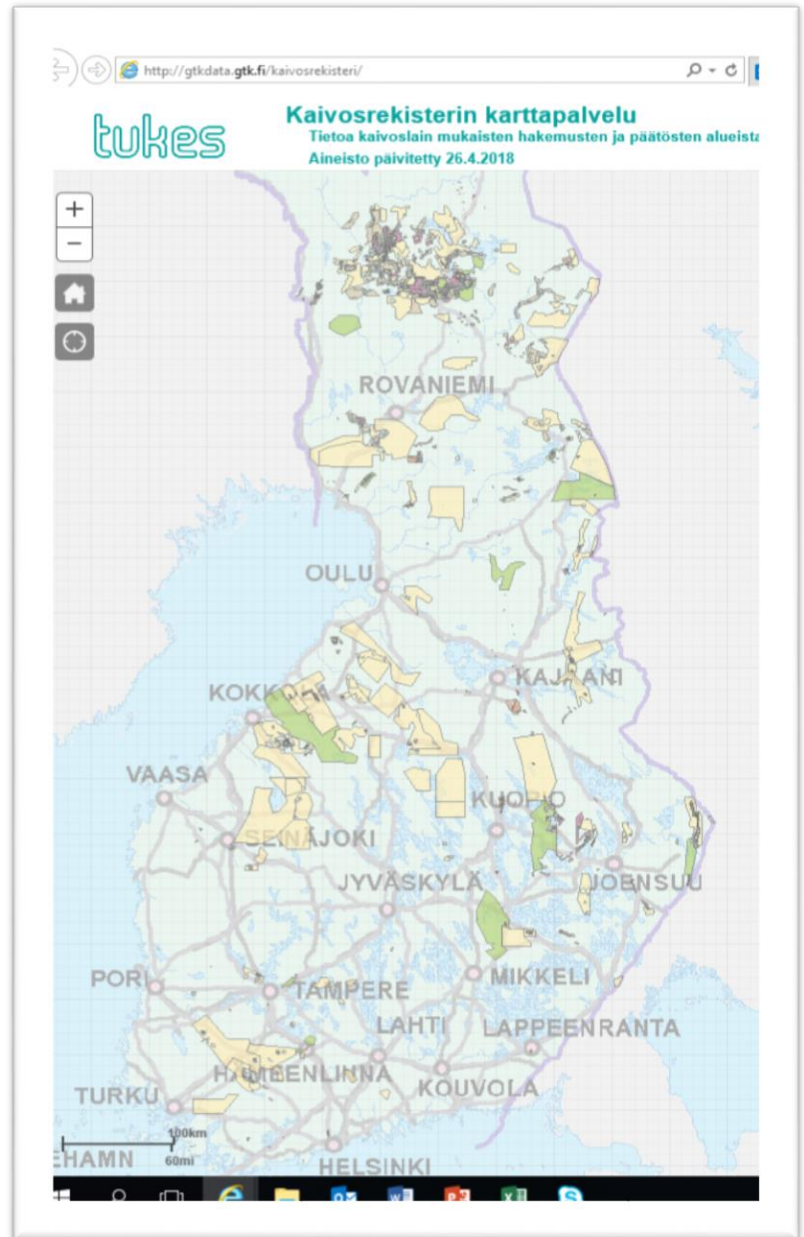


Rovaniemi 8th May 2018 Tukes/GTK stakeholder meeting

Review of mining authority on exploration and mining industry in Finland in 2017

Terho Liikamaa
Head of Unit, Mining Authority



Operating environment of mining in Finland 2017

EXPLORATION

2017 saw 46 companies submit exploration reports to Tukes.

- Drilling grew by 53% to 273 km/year.
- Total exploration investments were 61.4 million euros.

MINING ACTIVITY

22 companies submitted excavation reports to Tukes

- Total mining investments for 2017 were 303 million euros. The increase was 25%. The four biggest investment targets were Kevitsa, Suurikuusikko, Talvivaara and Siilinjärvi.
- Total excavation of ore in mines grew by 11% to 48.4 million tons.
- Total excavation of mines grew by 3% to 120.4 million tons.

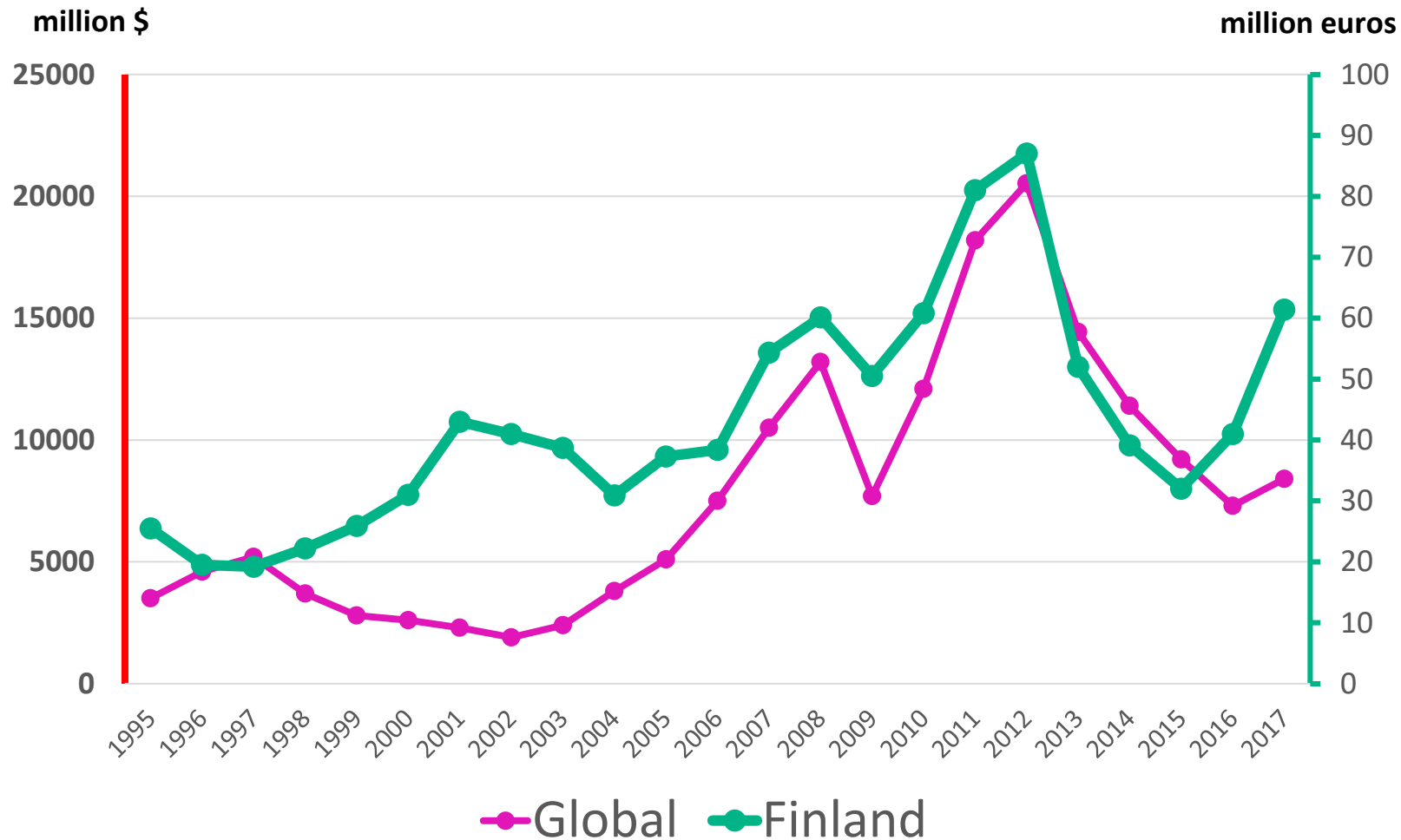
FRASER INSTITUTE ANNUAL – Survey of Mining Companies 2017:

- Investment Attractiveness Index – Finland 1st globally. Report says “Finland is a very transparent system, with excellent access to data and information.”
- Respondents, exploration and mining companies, praise the licensing process of Tukes and GTK's data files.

Exploration in Finland 2008–2017 (31.12.2017)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Exploration (million €)	61.4 +50%	41	34.5	39.1	52.8	86.8	81.0	60.8	50.5	60.1
No. of prospectors	46	41	42	41	38	45	52	49	42	45
No. of reservation notifications	96	68	50	61	64	197	178	138	123	98
No. of exploration applications	185	98	70	120	125	250				
Area of claims/exploration (km²)	1610	1700	1930	1850	1400	1310	1080	890	960	1100
Area of exploration applications (km²)	3420	2160	1980	3900	5450	8210	4620	2700		
Drilling (kilometres)	273 +53%	178	130	142	179	366	369	363	271	340
• Grassroot	•40	•20	• 23	• 26	• 32	• 36				
• Greenfield	•53	•57	• 51	• 46	• 51	• 103				
• Brownfield	•180	•101	• 56	• 70	• 95	• 227				

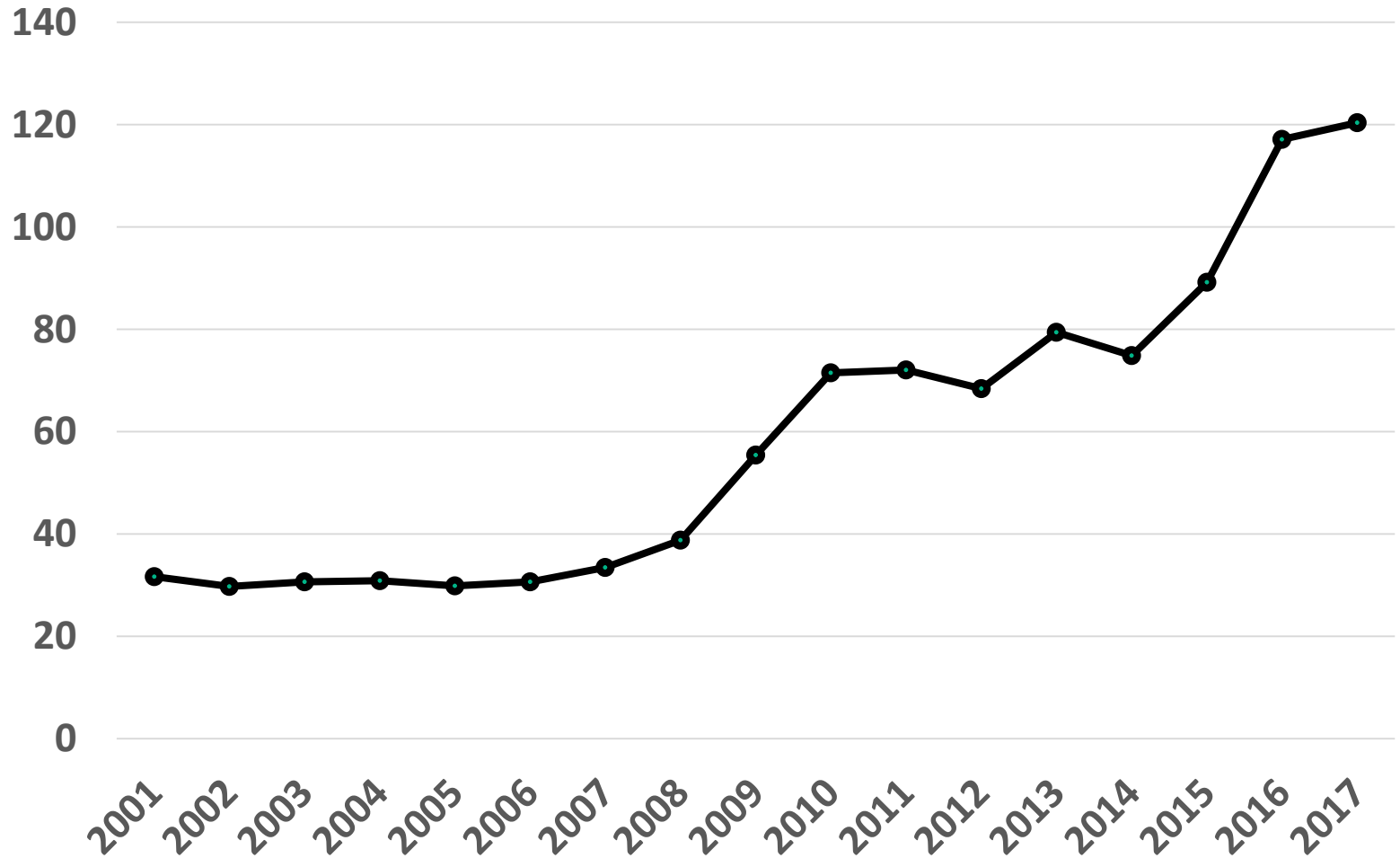
Investments in ore prospecting 1995–2017



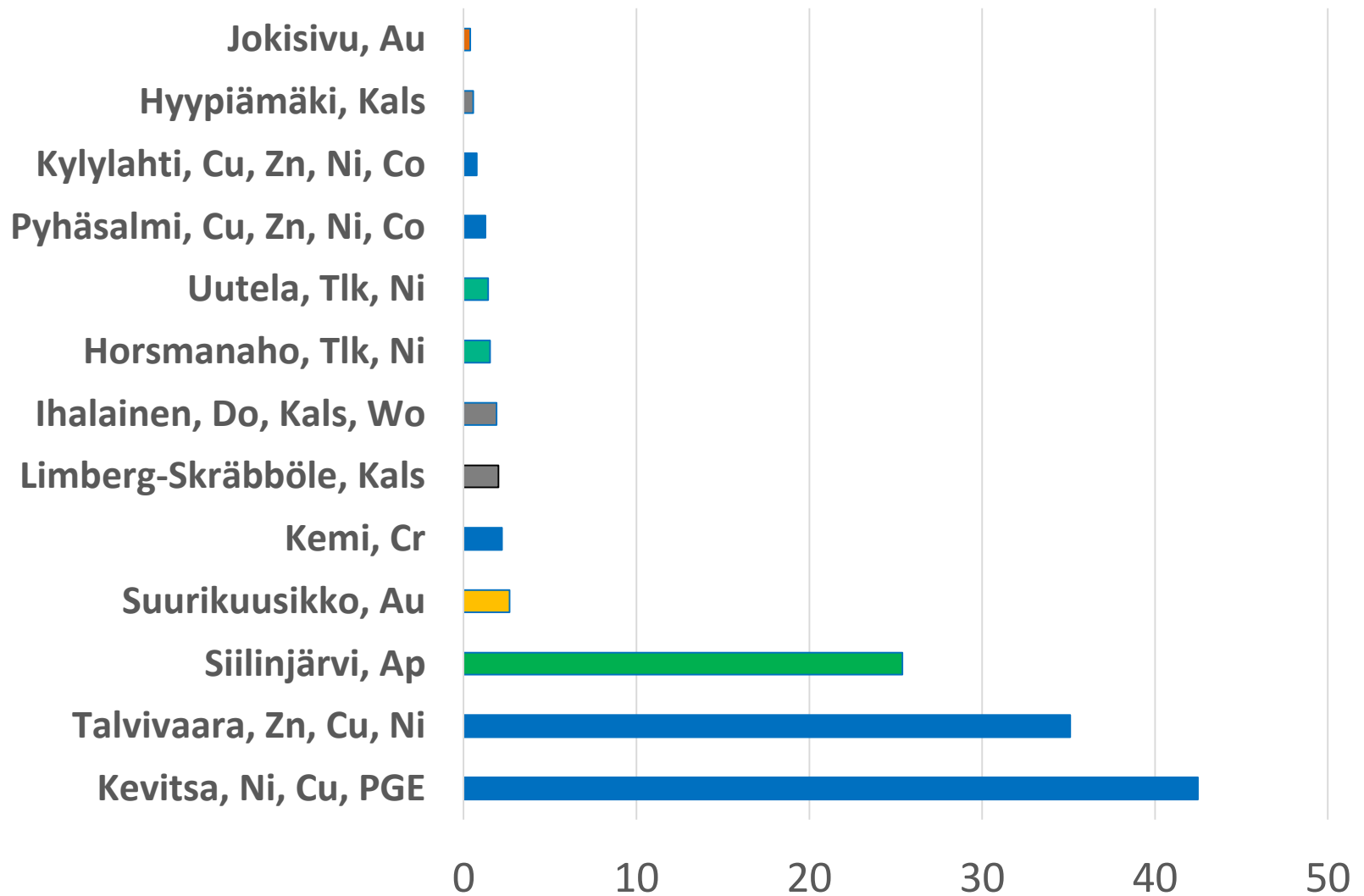
Mining activity 2009–2017

	2017	2016	2015	2014	2013	2012	2011	2010	2009
Number of mines (REPORTED EXCAVATION)	42	42	45	40	46	50	52	51	47
Mine investments (million €)	303 M€ (+25%)	242	157	190	200	320	555	297	150
Excavation of ore (million tons)	48.4 Mt (+11%)	43.7	32.9	29.5	36.5	34.8	33.2	33.9	24.1
Total excavation (million tons)	120.4 Mt (+3%)	117.2	89.2	74.8	79.4	68.4	72.0	71.5	55.4

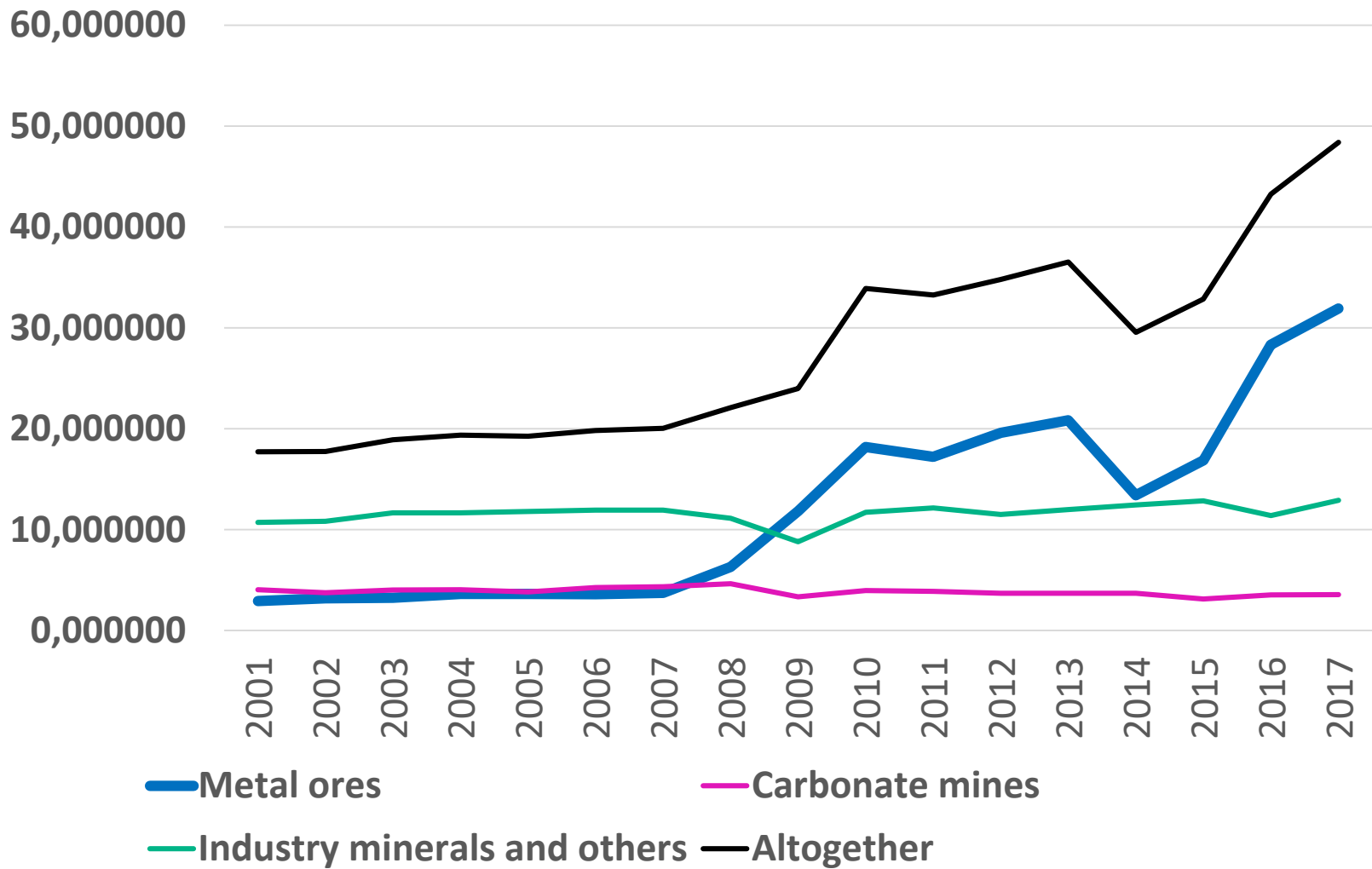
Total excavation (million tons) of mines in Finland 2001–2017



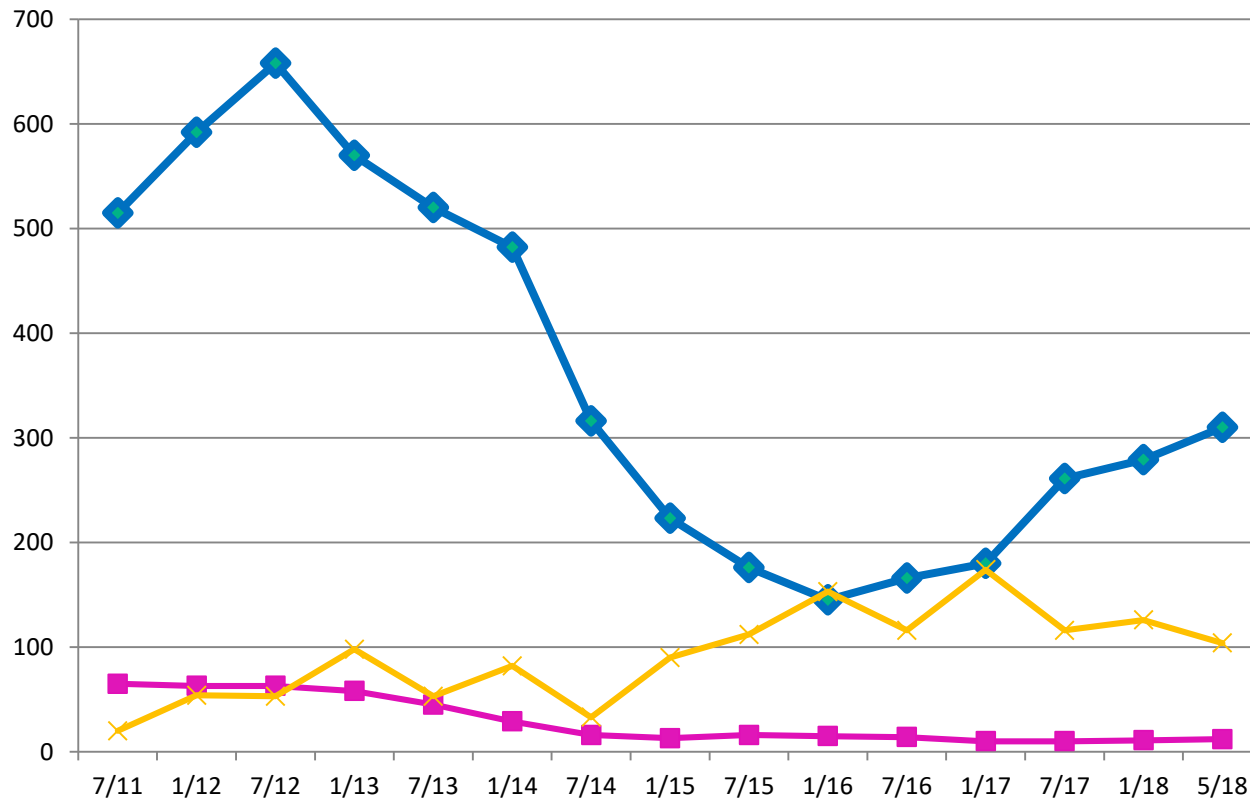
Total excavation (million tons) 2017 (13 biggest mines)



Excavation (million tons) for ore in 2001–2017



Permit applications in process 7/2011 - 5/2018



◆ Malminetsintä (Exploration) ■ Kaivokset (Mining) ✕ Kullanhuuhdonta (Gold panning)

Employees in the mining unit of Tukes

ROVANIEMI (10), HELSINKI (2)

Administration

- Terho Liikamaa, Head of Unit
- Tuula Sääskilahti, Lawyer
- Jussi Hytönen, Map service (in Helsinki)

Mining permits

- Ossi Leinonen
- Maria Kivi (in Helsinki)

Exploration permits

- Ilkka Keskitalo
- Heikki Puhakka
- Maija Viikinen
- Esa Tuominen
- Juho Veijanen, trainee

Gold panning permit (1)

- Pasi Molkoselkä,
- Katja Palo, map service

How to make exploration easier and more effective in Finland?

Three amendments to the Mining Act!

- **NOW**

- 1) moratorium, 2 OR 3 years
- 2) **exploration permit periods**
4 +3 +3+3+2 years (Exploration fee to landowner (4x20 e/ha, 3X30, 3X40, 5X50 e/ha)...after moratorium: 20e/ha...)
- 3) **the permit may remain valid for a maximum of 15 years**

Gold panning permit periods: 4+10+10 etc. years

- **BETTER** (requires the amendment of the mining law)

- 1) **no moratorium**
- 2) **exploration permit periods:**
4 +5 + 5 + etc...years,
(Exploration fee to landowner (4x20 e/ha, 3X30, 3X40, 5X50 e/ha) **no moratorium**...after 15 years, fee 50 e/ha)
- 3) **the mining authority may approve more than 15 years exploration**

More information about mining and exploration in Finland

Contact to mining authority

Finnish Safety and Chemicals Agency (Tukes)

Address: Valtakatu 2, 96100 ROVANIEMI

- kaivosasiat@tukes.fi / miningauthority@tukes.fi

Homepage of the mining authority

- <http://www.tukes.fi/en/Branches/Mining/>

Map service of the mining register in Finland (in Finnish)

- <http://gtkdata.gtk.fi/kaivosrekisteri/>

Mineral Deposits, Exploration and Mining Registry (in English)

- <http://gtkdata.gtk.fi/mdae/index.html>