



CHALLENGES AND OPPORTUNITIES FOR THE EUROPEAN AND ESTONIAN MINERAL SECTOR

Exploration of Mineral Resources and Prospects for Mining Conference
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INTRODUCTION

Eesti mineraalsete loodusvarade potentsiaal



www.energia.ee

Natural resources have long made – and continues to make – a significant contribution to Estonia's economic growth and development

Uses sophisticated production techniques and highly skilled labour to make the most of Estonia's mineral endowments

Is the engine for economic growth and technological development

It is a sector that needs to be sustained and nurtured

ROLE OF NATURAL RESOURCES IN OUR SOCIETY

Prosperity



Natural resource development has always been one of the first building blocks of society

‘mother’ of society’s infrastructure

‘Bread’ of communities

‘Sculptor’ of landscapes

ROLE OF NATURAL RESOURCES IN OUR SOCIETY

Social License

Benefit Sharing

Engagement

Legal & Procedural Fairness

Dispute Resolution

A metaphor for the relationship between resource developers, governance bodies and non-industrial stakeholders

The realignment of power relations where community stakeholders are equal partners

Very much an evolving occurrence here in Estonia

ROLE OF NATURAL RESOURCES IN OUR SOCIETY

Consume Now or Consume Later (UN SDG#12)



www.eitrawmaterials.eu

Sustainable consumption and production:

- Promoting resource and energy efficiency,
- Sustainable infrastructure and providing access to basic services,
- Green and decent jobs and a better quality of life for all

Sustainable consumption and production aims at doing more and better with less

Focus on economic gains that increase by reducing resource use, land degradation and pollution throughout the supply chain

ROLE OF NATURAL RESOURCES IN OUR SOCIETY

Ensuring External Sustainability



External pressures on domestic resource production

Preservation and development of external markets for natural resource products

THE NOTION OF SUSTAINABILITY

Sustainability as we know it today



Sustainability includes topics that reflect impacts and opportunities

- Community
- People
- Water
- Biodiversity
- Energy
- Materials Stewardship
- Governance

SUSTAINABILITY PRIORITIES

Community



Collaboration with communities so they benefit in a self-defined way

If not well managed negative impacts may occur:

- Environmental degradation,
- Stresses on social infrastructure and health services; and
- Interruption of subsistence lifestyles or creation economic dependence

SUSTAINABILITY PRIORITIES

People



Develop and engage a diverse workforce so they can lead to a sustainable future in a safe and healthy way

Embed a culture of safety, learning from high-potential incidents and sharing best practices and operating with excellence

SUSTAINABILITY PRIORITIES

Water



www.estonia.ee

**TAL
TECH**

Responsibly manage water resources to benefit of present and future generations and enjoy a balance between the social, economic, recreational and cultural benefits

SUSTAINABILITY PRIORITIES

Biodiversity

Achieve a net positive impact on biodiversity by maintaining or re-establishing self sustaining landscapes and ecosystems that lead to viable long-term and diverse land uses



SUSTAINABILITY PRIORITIES

Energy

Manage and make a positive impact on energy usage and make a positive contribution to society's efficient use of energy



www.mining.ubc.ca

SUSTAINABILITY PRIORITIES

Materials Stewardship

Maximize the benefit of our products and services to society while minimizing impact on people and the environment

Managing the impacts and benefits of materials across their life cycles from production through to recycling, reuse and end of life



Estonian Recycling Competence Centre

SUSTAINABILITY PRIORITIES

Governance

Development of natural resources to the benefit of all stakeholders through transparency, and diligent anti-corruption awareness



DEVELOPING AND NURTURING A NATURAL RESOURCE SECTOR

Resource Planning



Prioritisation and a resource development plan that reflects domestic need and available export market opportunities

Role of state-owned enterprises and developing opportunities for private investors/developers

Foreign investment provides:

- Capital inflow to increase stock of real capital
- Acceleration in employment
- Reduces economic disparities between leading and lagging sectors, and
- Increases the pool of investable funds.

DEVELOPING AND NURTURING A NATURAL RESOURCE SECTOR

Access to High Quality Geologic Data

- Broad mineral occurrence data is available on a number of online platforms e.g. European Geological Data Infrastructure
- Due to cutbacks in funding, many member state Geological Surveys stopped producing primary data that exploration companies require... data on historic and current operations, regional geology etc.
- Eastern, post-Soviet Europe has heaps of data, but haven't quite developed a way to get it into the public domain
- GTK in Finland and SGU in Sweden have been very successful

DEVELOPING AND NURTURING A NATURAL RESOURCE SECTOR

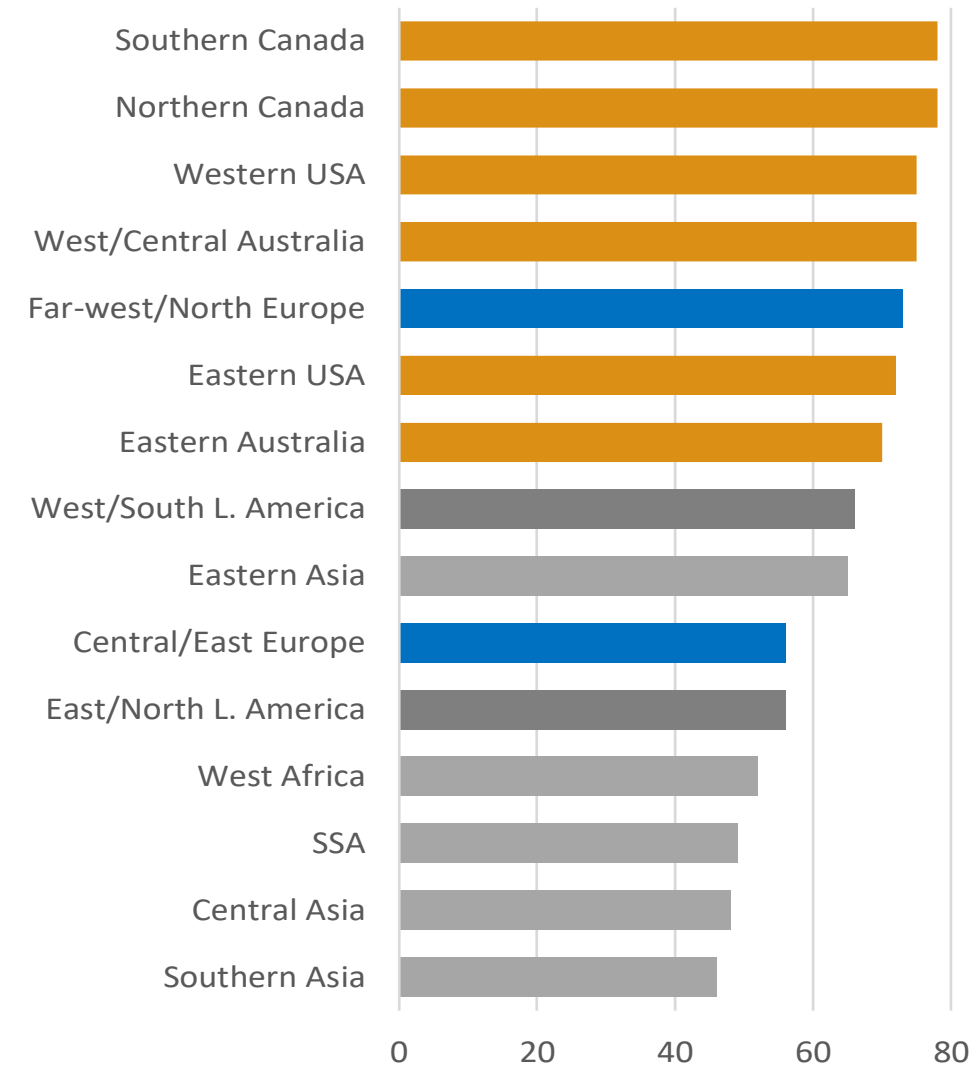
Mining Rights Management

- In jurisdictions like Canada and Australia, mining cadastres exist that captures mineral licenses, and forms the basis of granting authority and ultimately access
- Application of this model is somewhat uneven amongst EU member states and generally speaking those that are encouraging mineral exploration and development have developed such systems

DEVELOPING AND NURTURING A NATURAL RESOURCE SECTOR

Right to Mine and Security of Tenure

- In jurisdictions like Canada and Australia, assured that if we are the first on the ground and it is free, exploration can happen
- 'First-come-first-served' approach is unevenly applied
- Some jurisdictions, regulators choose the most suitable companies



DEVELOPING AND NURTURING A NATURAL RESOURCE SECTOR

Converting Exploration to Mining Licenses and Mining Rights Transfer

- In most European jurisdictions it is a follow on process and the explorer has first right to develop
- Transfer is relatively clear providing the new party fulfils technical, financial and regulatory/environmental conditions
- In some jurisdictions, the transfer may be subject to review in terms of whether it satisfies the 'public interest'
- Other examples, nations can force a sale if deemed to be in the nation's interest

DEVELOPING AND NURTURING A NATURAL RESOURCE SECTOR

Public Perception of Mining

- Mineral development in Europe faces similar social and environmental risks as in many other jurisdictions.
- Founded in historic poor environmental performance e.g. Talvivaara
- Opposition in some fashion at the 'community' level or expressed through the regulatory and permitting process, e.g. Northland, Nordic, and Beowulf's Kallak Iron project.
- NGO opposition is well developed in Europe and only in certain jurisdictions has there been effort to facilitate a dialogue amongst affected stakeholders

TRANSFORMING ESTONIA'S MINERAL ECONOMY

Estonia's Infrastructure Promise



Rail Baltica

Talsinki Tunnel

Revitalising aging infrastructure

New Economy infrastructure

TRANSFORMING ESTONIA'S MINERAL ECONOMY



www.mccullough.com

- Eventual shift from oil shale as a primary source of energy
- Other resources have to become part of the big picture strategy
- Support innovation and out-of-the-box thinking (something Estonia is pretty good at!)

TRANSFORMING ESTONIA'S MINERAL ECONOMY

Phosphorite

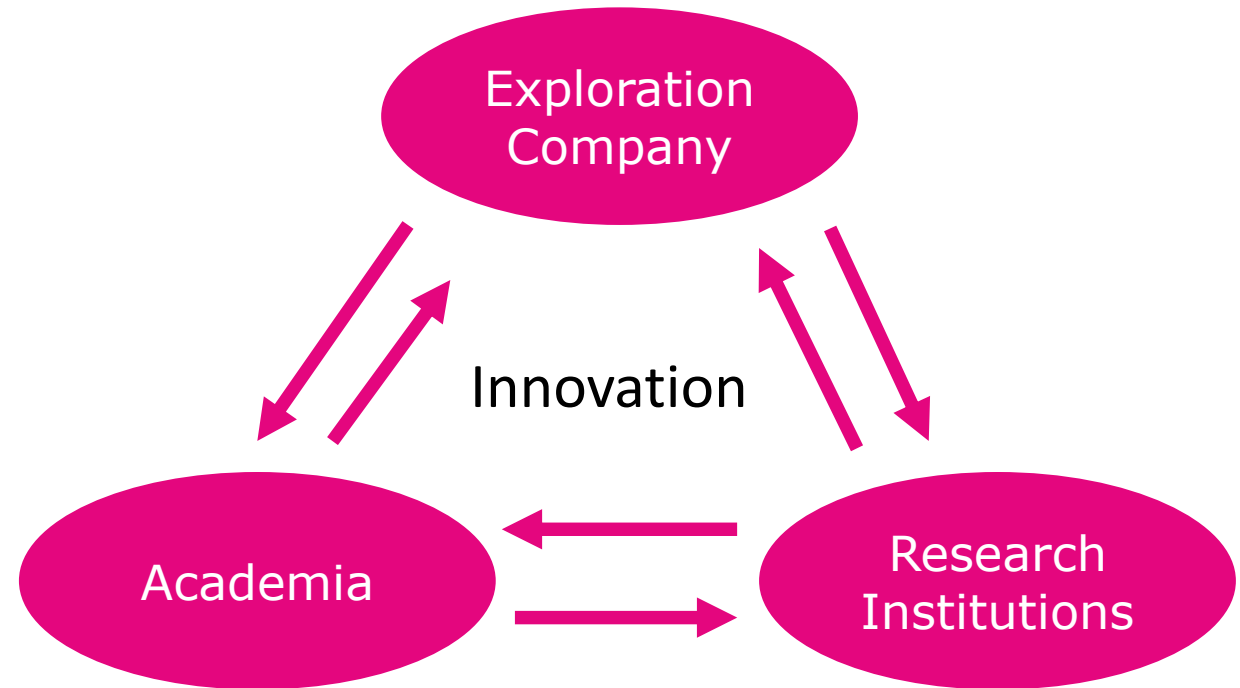


- Phosphate resources have tremendous promise as the next major element of Estonian Resource strength
- Has export potential, its high quality
- We have knowledge gaps
 - Unify what is known from historic and more recent work
 - Assess what mining might look like (underground/open pit, other mining methods); mineral processing options to maximise the resource (e.g. REEs)

TRANSFORMING ESTONIA'S MINERAL ECONOMY

The Innovation Triangle

- Powerful image illustrating how relationships build strength and opportunity
- Partnerships smooths the unevenness of some conditions needed for a healthy exploration environment
- Academic and Research Institutions tend to be very entrepreneurial and supportive



TRANSFORMING ESTONIA'S MINERAL ECONOMY

The Collective Power of Partnerships

- Many have been surprised in the different exploration landscape in Europe and Estonia
- Opportunities exist to assist and enhance the Estonian experience through partnerships with research institutes and academia
- Partnerships bring together raw materials' stakeholders to create a vibrant minerals sector in Estonia and close the gap between domestic production and consumption of strategic commodities

CONCLUSION

The Future of Estonian Resource Prosperity is NOW

- Estonia is endowed with a unique bounty of mineral resources that have been developed to some degree
- Opportunity to capitalize on Estonian skills and expertise to make current production more efficient (lower cost, higher productivity, greater resource utilization)
- Develop new capacity, capability and understanding of waste management, new resource development opportunities and social acceptance and social license
- Optimise environmental performance

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