

Laura Crawford

From: Brian Kelly [REDACTED]
Sent: 25 October 2021 12:07
To: Planning; Denise Dickson
Subject: DGL: invitation to visit
Attachments: IGI-Minerals-Information-Press-Release.pdf; Lifetime-Value-of-a-Mine.pdf; Mine-Planning-and-Environmental-Oversight.pdf; Mining in Ireland has key role in ensuring sustainable future (IT).docx; Mining-and-Our-Green-Future.pdf

Good afternoon Denise,

I am writing to you in relation to our planning application and the recent referral (of our application), to the Planning Appeals Commission, by Minister Nichola Mallon. We have been in contact with Fermanagh Omagh District Council and our neighbouring councils over a number of years and are in contact again at this important juncture.

Our proposed operation will be an underground mine, not open cast, and will use surface operations and practices similar to those employed at the Cononish mine, which is situated in the Loch Lomond and Trussachs National Park in Scotland.

Our application is for a polymetallic mine which will produce gold, silver and copper. The need for and importance of mining in supporting our existing economy and in transitioning to a reduced carbon future has been clearly identified by bodies as diverse as the EU, the Institute of Geologists Ireland and the Critical Minerals Association (see attached documents).

We fully accept that mining, like many industries, can be emotive. However, it is important that opinions, or hearsay, are not presented as facts and that the application is judged accordingly. This is why the company has long been on record as welcoming a public inquiry.

Modern mining operations are successfully carried out in other developed countries without negatively impacting the environment or the local community as is evidenced at Tara mine in Navan, County Meath.

Mid-Ulster District Council have agreed to undertake a site visit to the Dalradian site and we would like to extend an invitation to the members and officials on the planning committee at Causeway Coast and Glens District Council too.

Previously, officers and members from Derry City and Strabane District Council have visited our offices and site.

We hope that you will look upon this invitation favourably and look forward to hearing from you in due course.

Kind regards,

Brian

Brian Kelly

Managing Director

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MINING AND OUR GREEN FUTURE

MINERALS & MINING TERMS

Raw Materials - Materials in their natural state, before being processed into a product.

Climate change requires an immense response across all of society and the economy. Mineral exploration and mining are essential for ensuring a stable and sustainable supply of metals to support this.

The European Commission's Green Deal and the United Nation's Sustainable Development Goals aim to transform economies for a sustainable future. In a green economy, employment and economic activities reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and natural capital. This means dramatic changes for the energy, mobility and digital sectors, and how they are resourced. The Green Deal recognises the importance of ensuring supply of both primary (mined) and secondary (recycled) materials necessary for the move away from fossil fuel-based energy technologies.

Energy Transition



Fundamental shift in the resource basis of a society

Decarbonisation, the process of removing or reducing carbon dioxide production from a country's economy, is at the core of the green economy and climate action. Switching from fossil fuels means using renewable options such as wind energy, solar energy, geothermal energy (energy sourced from the Earth's natural heat) and battery storage. All of these are reliant on utilising a wide variety of metals and minerals, which are naturally occurring inorganic substances that make up rocks. The mining industry will continue to have a vital part to play as the demand for different metals increases significantly to meet changing trends in consumption.

Analysis by the World Bank of the demand for metals to support the clean energy transition estimates increases in demand for metals used across a variety of energy technologies, including aluminium, cobalt, copper, iron, lead, lithium, nickel, manganese, platinum group elements, rare earth elements, silver, titanium and zinc.

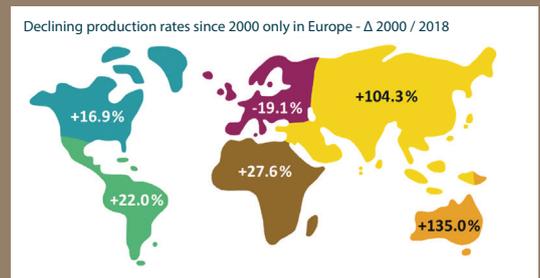
Where are the raw materials to make this future going to be sourced?

Despite a long mining history in much of Europe, awareness remains low of the critical importance of raw materials to society, the need to develop domestic European production and resources, and the socio-economic benefits of sustainable and ethical mining.

Mineral production in Europe is lagging behind elsewhere in the world (down 19% between 2000 and 2018). Currently, Europe has to import more than 75% of almost all metals, and up to 100% of some critical minerals. With that comes certain supply risks, such as higher prices that could have an adverse impact on the economy in the event of a serious trade dispute or disruption.

Long import distances also mean carbon-heavy shipping at a time when the move to a low carbon economy is a priority for governments across Europe. Also, some countries where we currently source our minerals are heavily dependent on coal-powered electricity. EU policy supports the secure and sustainable supply of minerals sourced in Europe.

Europe is home to raw materials which can be used to reduce our dependency on imports from the rest of the world and the geological community has the ability to meet this challenge. While not all metal requirements can be met within Europe and Ireland, more can be done. More mining in Europe would ensure it takes place under environmentally and socially sound conditions while making the economy more resilient.



World Mining Data, 2020

Ireland's Contribution

Ireland has much to contribute. The country is a major international source of zinc, producing 122,000 tonnes in 2019, the 4th largest producer in Europe and the 17th in the world. Zinc is used in galvanising processes to prevent corrosion, protecting metals from rust and extending the lifetime of products, particularly vital energy transition technologies such as wind turbines, solar panels and electric cars – keeping them in use as part of the circular economy for longer.

Zinc has an increasing role to play in large-scale battery infrastructure that will facilitate the storage of energy from renewable

energy sources, which can be intermittent. It is also a major component of brass and is a raw material for goods such as medicines, cosmetics and human health supplements.

Our mines also produce lead (16,000 tonnes in 2019, 8th in Europe) and silver which, amongst other uses, are vital components of batteries and electronics used in everyday items such as vehicles and smart phones.

Amongst other metals that are important to the green economy that can be found in Ireland are copper, gold, lithium, barytes, antimony, tin, tungsten and Rare Earth Elements.

Battery Technology

The success of green technology is dependent on the efficiency of battery storage, both in terms of size and capacity. They need to be small enough for electric vehicles or have sufficient capacity for large-scale utility use. Zinc-air and solid-state lithium-ion batteries are currently in development but are not expected to be widely in use until 2030. Their development would see an increase in demand for zinc, lithium, nickel, cobalt and manganese.

The Circular Economy

Recent economic models have been “take – make – dispose”. Instead, the circular economy aims to keep materials in use as long as possible then either re-using them as another product or recycling them to make new products, where feasible. With efficient recycling, metals can be used over and over again, minimising the need to mine and process raw materials while decreasing energy and water requirements. However, there are challenges to achieving a truly circular economy, which mean that raw materials are lost in part or in full at various stages in the circular economy cycle.

Challenges

- As people live longer, global population is increasing. Plus, consumption rates are increasing, driven by developed countries.
- Many metals in renewables had limited uses until recently. As such, there is very little stock that can be recycled until enough reach the end of their lifespans.
- All the metal available for recycling now is representative of historical production and even if all of that metal was recycled today, would be unable to meet current demand.
- Recycling rates are currently low for many elements, meaning they unfortunately end up as waste. Secondary raw materials, sourced from recycling, also currently have disadvantages compared with primary raw materials in relation to performance, availability and cost. Recycling rates and technologies need to be improved. Better product design with end-of-life recycling in mind is essential if society is to make the most efficient and environmentally conscious use of valuable resources for the long term.
- Metals may be lost during the consumption of products (e.g. cosmetics, medicines) or bound in long-term usage (e.g. energy infrastructure). This loss/binding of raw materials means that there is still a significant need to produce metals in order to ‘feed’ the circular economy.

Mining and the Circular Economy



Source: EIT Raw Materials

Circular Economy in Mining

- Improving extraction efficiencies and maximising re-use of tailings (the leftover material from the mining process) for backfilling and stabilising underground mines, can have cost savings and environmental and safety benefits.
- Smelters, facilities that apply heat to ore in order to extract metals, can be used for recycling metals.
- Historic mine waste is being investigated for sources of metals that were not considered economic at the time to recover during mining but may be economic now.

Decarbonisation in the Mining Sector

Mining and climate change are inextricably linked; mining uses a lot of energy but the technologies the world needs for decarbonisation will require more mined materials. It is crucial that the mining industry decarbonises, so the greenhouse gas emissions do not simply move from power stations to mine sites.

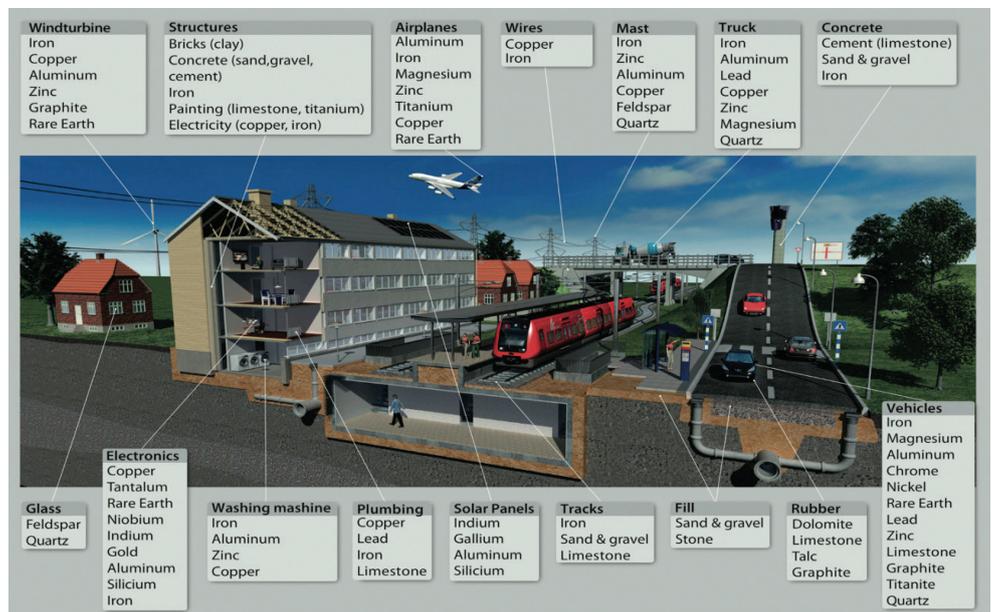
Fortunately, renewable energy sources for powering mines and electrification of vehicles are rapidly becoming more affordable and uptake has increased significantly. Re-purposing disused mine sites also has a role to play - the wind

farm built on the Lisheen mine site in Co. Tipperary midway through the life of mine had the capacity to provide all of the mines power requirements, while also supplying the nearby villages and the whole town of Thurles. The mine is now closed but the wind farm remains operational. The electrical infrastructure installed for the mine has been further leveraged by other wind farm companies, who developed additional turbines in the area, with further turbines planned. The substation at Lisheen now has over 100MW of wind energy connected, which is capable of powering the entire city of Galway or saving 100,000 tonnes of CO2 every year.



Wind farm established at the site of the Lisheen zinc-lead mine, Co. Tipperary.

Minerals in Our Everyday Lives



Source - PR Neeb, 2006

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European Commission (2020) *Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability*

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Mining in Ireland has key role in ensuring sustainable future – geoscientists warn

IGI launches educational resources to support learning and counter ‘misinformation’

Mon, Mar 8, 2021, 00:01

[Kevin O'Sullivan](#) Environment & Science Editor



Europe is 75 per cent dependent on imports for almost all metals and up to 100 per cent for some critical minerals. Photograph: iStock

[Ireland](#) and [Europe](#) must be open to exploration and mining of “critical metals” to ensure the transition to a green economy, according to leading geoscientists.

“Persistent misinformation”, however, in relation to exploration activities could eventually impair the sector’s ability to support the transition, the [Institute of Geologists of Ireland](#) (IGI) warned.

In response, the IGI launched on Monday a science-led series of factsheets to raise awareness of “the role of mineral exploration and mining in meeting Ireland’s future societal, economic, and environmental needs”.

With decarbonisation, the switch from fossil fuels means moving to renewable options such as wind energy, solar energy, geothermal energy and battery storage which will create huge demand for critical metals, it warns. “However, society’s awareness is perceived as low that all of these processes are reliant on using a wide variety of metals and minerals.”

IGI spokesman [John Barry](#) said: “A future of clean and renewable energy to mitigate climate warming is not possible without metals. Mineral exploration and mining are essential to ensure supply of these metals.”

The critical role of mining had become less recognised in an increasingly technological world yet it is one “increasingly reliant on these critical metals”.

“Mineral exploration and mining, which are highly regulated in both the Republic of Ireland and [Northern Ireland](#),” he underlined.

Available at [igi.ie](#), the series “aims to support learning and help inform the public conversation, including among communities, environmental interest groups, public representatives, and anyone with an interest in Ireland’s green energy future”.

‘Outdated perceptions’

The series was produced by experts in mineral exploration and mining, and environmental geologists based on the island of Ireland. They also address “outdated perceptions in relation to the industry and its practices, which are subject to rigorous safety and environmental standards and regulation”.

Europe’s green deal recognises the importance of ensuring mined and recycled materials in adopting green technology. “However, raw materials are lost in part or in full at various stages in the circular economy cycle. This means significant challenges still exist when it comes to realising a more circular economy without continued primary metal production,” the IGI notes.

Europe is 75 per cent dependent on imports for almost all metals and up to 100 per cent for some critical minerals. It is lagging behind the rest of the world, the IGI said, yet demand for minerals and metals has reached an all-time high, driven by population increase, advances in modern technologies and moves towards a low-carbon economy. The Republic has only two working mines though it is a major international source of zinc generated by [Tara Mines](#) in Co Meath. Northern Ireland has one mine operated by Irish Salt Mining and Exploration in Co [Antrim](#).

“Ireland can offer more. Strong potential exists to further explore for zinc, in addition to other known metals critical to the green economy which are also found on the island including silver, gold, copper, lead, lithium, barytes, antimony, cobalt, platinum group elements and rare earth elements,” the IGI adds.

Geologists are adapting to work in green energy technologies such as geothermal energy, carbon capture and energy storage, Mr Barry confirmed.



MINE PLANNING AND ENVIRONMENTAL REGULATION

Recent decades have shown that modern mines can be operated successfully in Ireland without long-term damage to the environment or public health. With co-operation between the authorities and stakeholders the regulation, operation and, when it happens, the closure of mines has been a largely positive process in Ireland.

Mines have significantly benefitted local communities both socially and economically while making use of our natural resources. All mining and exploration activity must comply with relevant national and European legislation. Mining companies operating in Ireland in recent decades have worked responsibly to meet and maintain the high standards of compliance required, and to leave environmentally low risk, safe sites for future re-use. Companies have, in a planned way, closed mines carefully, restoring these sites to agricultural uses and/or facilitated other potential industrial uses.

Regulation is tailored to the life stages of a mine



EXPLORATION
5-25 years



AUTHORISATION & DEVELOPMENT
10 years



OPERATION
10-50 years



CLOSURE
5-10 years



AFTERCARE
30 years plus

Exploration

In addition to zinc, Ireland has good potential for the discovery of many minerals, including those required for the energy transition process. Since the 1960s, thousands of Prospecting Licences have been issued across Ireland, north and south. The exploration conducted has resulted in the discovery of several major mineral deposits, including Europe's largest zinc mine, and the third largest in the world, at Navan, Co. Meath. A Prospecting Licence permit issued in the Republic of Ireland or Northern Ireland allows the holder to explore for minerals in a defined geographic area for 6 years, with the option to renew if the holder has met

the agreed requirements. Most steps in mineral exploration are low-key, leading up to drilling of a small hole or series of holes by a compact drilling rig to establish the presence of minerals. Licence holders must respect the wishes of landowners regarding access and be environmentally responsible. A Prospecting Licence does not give permission to mine. All exploration activities, north and south, are assessed as to whether the activity has the potential to have a significant effect on protected sites, including Natura 2000 protected areas.

For more information on the licensing process and on environmental safeguards see the following links:



www.gov.ie/en/publication/b45fe-prospecting-licences-common-questions-and-concerns/

www.economy-ni.gov.uk/sites/default/files/publications/economy/minerals-prospecting-licence-faqs.pdf

Authorisation and Development

After successful exploration, to legally operate a mine, certain permits must be obtained, generally in the following order:

- 1. Planning Permission** incorporating Environmental Impact Assessment (from the Local Authority or An Bord Pleanála in the Republic of Ireland or the Department for Infrastructure in Northern Ireland). The licence holder is typically a mineral exploration or mining company, rather than an individual.
- 2. An EPA licence in the Republic of Ireland** (environmental regulations and legislation are part of the planning permission in Northern Ireland).
- 3. A Mining Lease or Licence** (depending on who owns the minerals) from the Department of the Environment, Climate and Communications, or from the Department for the Economy in Northern Ireland (Minerals and Petroleum Branch).

Authorisation for a proposed mine and associated processing, waste storage facilities and infrastructure is subject to rigorous examination, public participation and, where granted, conditions for construction and operation. Safeguarding the environment is a core consideration. Applications are very detailed with many technical reports from expert and international consultants. Typically, application and authorisation documents are available to be viewed online. The proposal is subject to the local, national and EU legislation in the Republic of Ireland and UK legislation in Northern Ireland.



Republic of Ireland links:



www.gov.ie/en/policy-information/28d9da-mineral-exploration-and-mining/

Northern Ireland links:



www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/SPPS.pdf

www.daera-ni.gov.uk/articles/ippc-guidance-and-application-forms

Operation

Mining companies must operate in compliance with the conditions and limits specified in their authorisations. A licence from the Environmental Protection Agency (EPA), or planning permission in Northern Ireland, regulates the environmental performance, emissions to water & air, noise, vibration and generation of waste from the operation. The Health and Safety authorities regulate the safe working practices of the operation. Central government departments oversee that the company is mining in a safe and sustainable way and recoups royalties on behalf of the State or the mineral rights holder. Site inspections and monitoring of emissions are regular and can be unannounced in Ireland. Under the terms of a licence the

company must also carry out self-monitoring on many aspects and has a strict duty to notify the authorities immediately if there is an incident or non-compliance. All ongoing monitoring and reports are examined by the authorities and, if necessary, investigations and enforcement action can be taken, up to and including court prosecutions. In the Republic of Ireland, companies with an EPA licence are required to publish Annual Environmental Reports on their environmental performance. Enforcement data are published by the EPA in the Republic of Ireland and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland.



www.epa.ie/pubs/reports/enforcement/EPA_ComplianceandEnforcementPolicy.pdf

www.daera-ni.gov.uk/sites/default/files/publications/dard/dard-enforcement-policy.pdf

Health and safety legislation applies to all operating mines and sets out duties on the owner, operator, manager and employees at a mine with respect to persons at or in the area immediately surrounding a mine.



www.hsa.ie/eng/Your_Industry/Mining/

www.hseni.gov.uk/topics/mining-and-quarrying

Closure and Aftercare

Regulation has an important role to play in mining, as it is designed to reduce and mitigate against environmental risk. Exhaustion of the ore is inevitable and therefore planning for, and design of, closure is an integral part of the licensing process. The costs associated with closure and clean-up can be significant for mines running to tens of millions and can take many years. Mining companies are therefore required to assess and plan for the costs associated with closure from the outset to ensure that there is adequate money and resources set aside to cater for this (known as financial provision). It is not only important to protect the environment but also to protect the public purse in the case of default by a company where the state would then have to step in and remediate and close the site. Therefore, funds are required to be secure, sufficient and accessible by the state if necessary. Closure and aftercare planning is very detailed and all tasks, large and small, are costed. Plans are developed in line with national and

international guidelines, approved by the authorities and reviewed at least annually during the operation of the mine. Cessation of operations, whether anticipated or not, must be followed by implementation of the approved closure plan by the mining company. When satisfactory closure has been demonstrated to the authorities, aftercare of the mine is then implemented. Aftercare generally entails lower-level monitoring and maintenance to ensure the risk to the environment continues to be minimised. Both closure and aftercare are overseen closely by the authorities particularly the spending of funds set aside for this purpose.

LEARN MORE

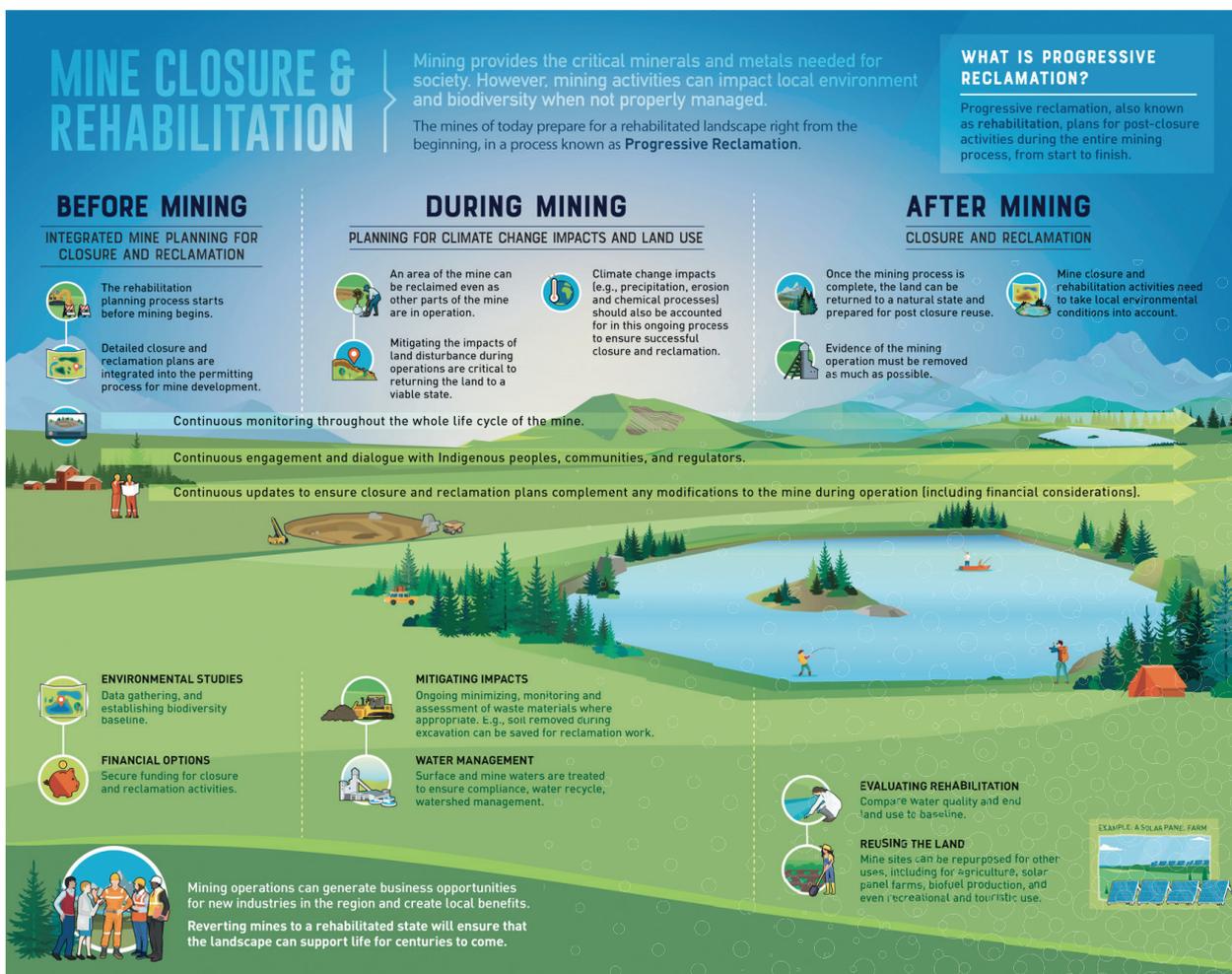
See Factsheet on Lifetime Value of a Mine for a recent, successful mine closure at Lisheen, Co. Tipperary.

See the following links for more information about mine closures in Ireland:



www.epa.ie/pubs/advice/licensee/fp/

www.gov.ie/en/publication/29332-a-social-environmental-and-economic-assessment-of-galmoy-and-lisheen-mines/





LIFETIME VALUE OF A MINE

MINERALS & MINING TERMS

Deposit - A Mineral Deposit is an accumulation of any single mineral or combination of minerals occurring in a mass, or deposit, of economic interest.

Value of Mineral Exploration & Mining

Ireland is internationally renowned as a major zinc and lead mining country, including the ore deposit at Navan, Co. Meath which has been in operation since 1977 and remains the largest zinc mine in Europe. Other minerals being mined in Ireland include gold in Co. Tyrone, gypsum in Co. Monaghan and rock salt in Co. Antrim.

Economic Impact of the Irish Mineral Exploration and Mining Sector

The development of Irish mineral deposits is an important component of the economy, providing essential minerals for industry while generating employment and Government revenue in the form of taxes and royalties, as well as payments to local authorities and local community contributions. Exploration is continuing for further deposits and the island remains strongly prospective for new mineral discoveries.

The economic value-added contribution of the mineral exploration and mining industry is also considerable and far-reaching, covering employment, wages and salaries, non-labour and capital expenditures.

Direct expenditure on mineral exploration in Ireland for the period 2009-2019 was €234m, while metal mining annually contributes approximately €550m directly to the economy as well as a further €230m in gross added value. This generates over 1,400 regional jobs, most of them highly skilled.

A feature of the industry is the broad regional distribution of the mines and their workforces, with up to 80% of mine employees being locally based. While some manufacturing industries can move their businesses to low cost countries, a mineral deposit cannot be relocated.

Long-term spin-off industries arising from the exploration and mining sector include geochemical laboratories, drilling companies, design, consultancy and contracting service companies operating in the fields of engineering, geology and environment both in Ireland and internationally.

The Mining Life Cycle

The extraction and processing of minerals leads to the development and depletion of a non-renewable resource over time, so eventual closure of mines is inevitable. Mine planning therefore involves preparation for the

development of the mine, its operation through to eventual closure and site aftercare. This is known as the Mining Life Cycle.

In Ireland, the Lisheen Mine in Co. Tipperary is a recent example of a mine that has moved through all phases of the cycle, following its closure in 2015.

Here we look at the stages of the life cycle in more detail, using Lisheen as an example of how value was derived not only to the economy, but also to communities and wider society:

1. Exploration & Feasibility Studies

The Lisheen zinc and lead deposit in Co. Tipperary was discovered through mineral exploration by an Irish-registered resource company in 1990. The deposit consisted of two main ore bodies that lay at a depth of 170 metres. Planning for underground mine development began in the early 1990s - a Feasibility Study was prepared, involving extensive technical, economic, environmental and planning studies, as well as community consultation.

2. Mine Design & Planning

The statutory planning process was initiated in 1995 when an Environmental Impact Statement (EIS) and a planning application was submitted. The development was then approved by North Tipperary County Council in August 1996. An Integrated Pollution Control Licence was issued by the Environmental Protection Agency (EPA) in June 1997 and final planning permission was granted by An Bord Pleanála in June 1997. A State Mining Lease was then issued by the Minister for Marine and Natural Resources in October 1997.

3. Construction & Installation

Construction of the mine began in 1997 and lasted for 2 years, during which time up to 700 people were employed. The total development cost was approximately €246m which represented one of the biggest ever private investments in Ireland at the time.

4. Extraction & Economic Benefits

Mine production began in October 1999 and ran for 16 years, concluding in 2015, during which time an average of 300,000 tonnes of zinc concentrate were produced annually. This generated €2.8 billion in mine revenue, providing 350 jobs directly (€352 million paid in wages and salaries) and almost 500 additional jobs in the wider economy. During its lifetime in operation, the mine generated €1.3 billion Gross Value-Added to the Irish economy, €5.8 billion in direct, indirect and induced spending and paid €257 million to the State in royalties, taxes and rates. The mine and its local environment were subject to extensive environmental monitoring as part of its licence conditions.

5. Mine Closure and Aftercare

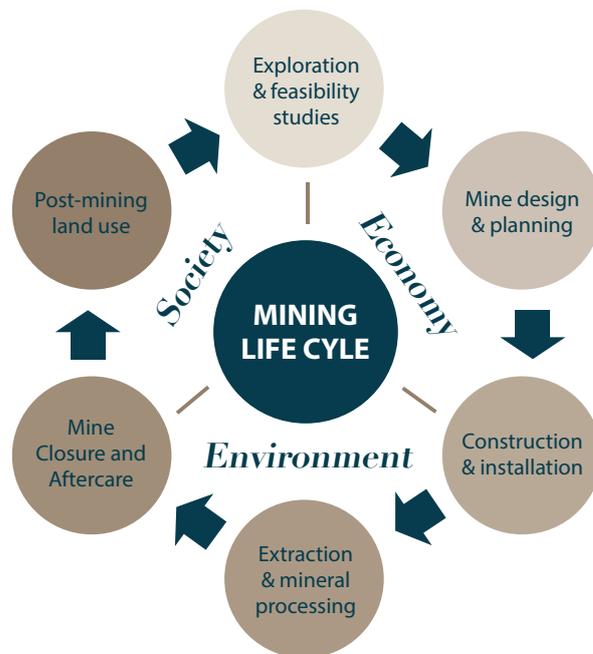
Lisheen was one of the first mines in Ireland to be opened, operated and closed under a new regulatory regime which required a closure plan and financial provisions to support this plan. The mine was required to develop Closure, Rehabilitation and Aftercare Management Plans (CRAMP) during its planning phase outlining the rehabilitation works that would be carried out and the associated cost, and a Closure Fund of €24 million and an Aftercare Fund of €3 million was set aside during operations for that purpose.

Detailed preparations for the closure phase of the mine commenced 10 years before mining operations finished in 2015. Prior to the cessation of mining, Lisheen Mine began progressive rehabilitation of the site and in particular on the tailings facility (storage for ore residue). Lisheen gave a commitment to the local community to have the tailings facility 60% rehabilitated before mining ceased and this was achieved. This progressive rehabilitation allowed Lisheen to provide reassurance to the local community of the robustness of the closure plan. Once mining production ceased, the closure plan was implemented which included backfilling of the underground mine, clearing and removal of buildings and equipment, removal of ground contaminated with lead and zinc and completion of rehabilitation of the tailings facility to farmland. This was accompanied at each stage by a rigorous monitoring and verification programme, overseen by the authorities. A follow-on aftercare phase will continue for at least 30 years.

6. Post-Mining Land Use

Following the closure of Lisheen, most of the site infrastructure was removed. Wetlands were also created to trap excess run-off at discharge points. The buildings and infrastructure that remain on site represent a permanent capital asset that facilitates continued economic activity, enabling other businesses and industries to establish on the site following closure. The site is now being repurposed as the National Bio-economy Campus with support from the EU to promote circular economy projects in the agri-food industry. The electrical infrastructure installed to develop the mine was leveraged by Lisheen and others to develop wind farms, currently comprising 44 turbines which produces enough energy to fully power 70,000 homes.

Other positive community effects included infrastructure improvements, such as roads, telecommunication upgrades, a replacement water supply scheme (providing high quality water for local residents, funded by the company) and investment in local sports facilities and community halls. An extensive outplacement programme that was implemented by Lisheen prior to mine closure to upskill and prepare employees for replacement careers helped to reduce long-term unemployment in the area following the closure of the mine.



LISHEEN: PROGRESSIVE REHABILITATION of 70ha of Mine Waste Area



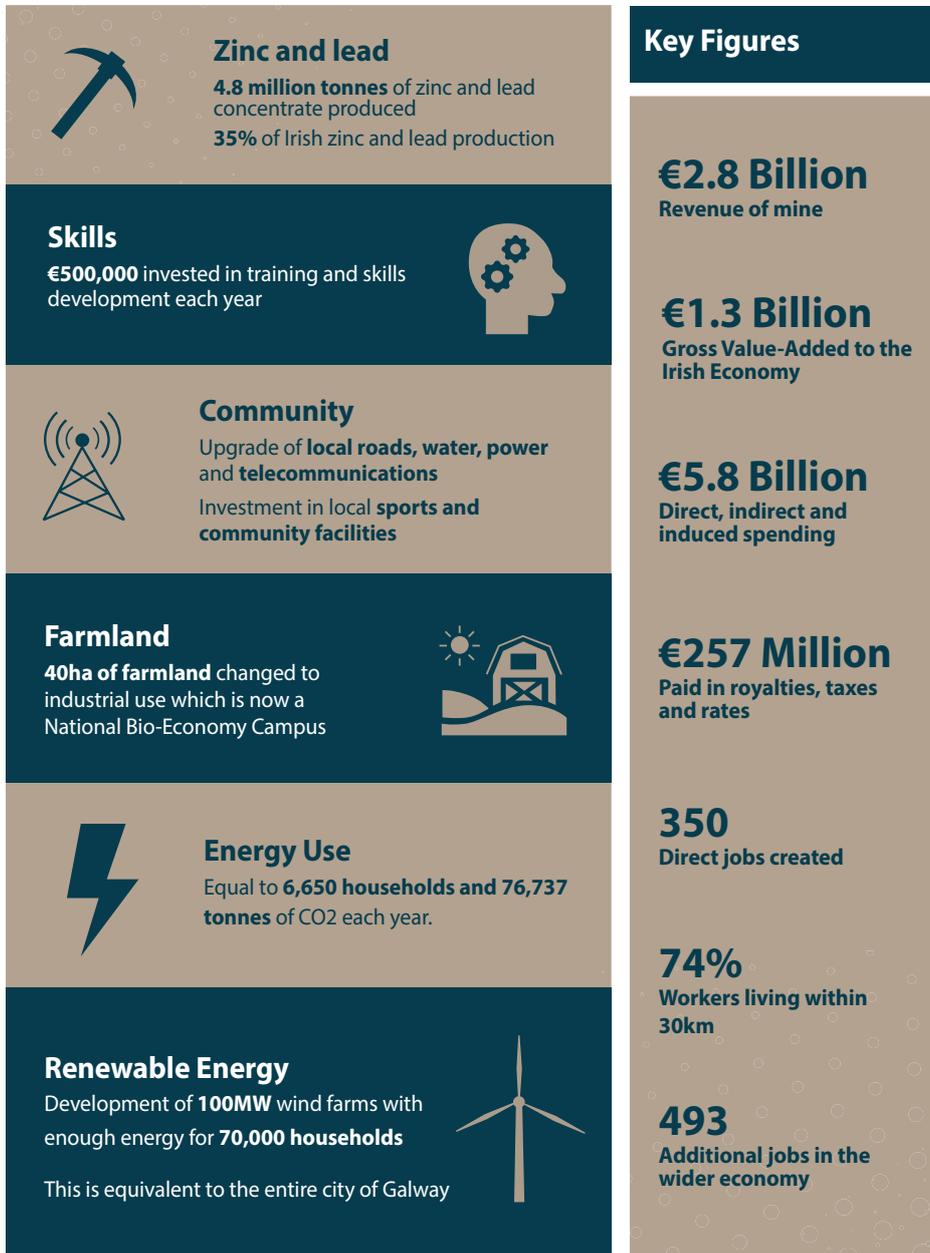
Key Effects of Lisheen Mine

1999

2015

Mine
Opens

Mine
Closes



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www.gov.ie/en/publication/29332-a-social-environmental-and-economic-assessment-of-galmoy-and-lisheen-mines/



INSTITUTE OF GEOLOGISTS HIGHLIGHTS CRITICAL ROLE OF MINING FOR A SUSTAINABLE FUTURE

IGI launches educational resources to support learning

8th March 2021

The Institute of Geologists of Ireland (IGI) wants to ensure that members of the public have access to facts on the critical role of mineral exploration and mining to our sustainable future. The IGI, the accrediting body for professional geoscientists on the island of Ireland, has launched a new science-led series of factsheets designed to raise awareness of the role of mineral exploration and mining in meeting Ireland's future societal, economic and environmental needs.

Available as a free resource from www.igi.ie the series aims to support learning and help inform the public conversation, including among communities, environmental interest groups, public representatives, and anyone with an interest in Ireland's green energy future.

The information, produced by the Minerals Information Working Group of the IGI, comprising expert mineral exploration, mining and environmental geologists on the island of Ireland, also aims to address some of the misinformation, or outdated perceptions in relation to the industry and its practices, which are subject to rigorous safety

and environmental standards and regulation. In this context, IGI cautions that persistent misinformation in relation to exploration activities could eventually affect the industry's ability to support society's transition to a greener economy.

Renewable Energy reliance on Minerals

The European Green Deal recognises the importance of ensuring supply of both primary (mined) and secondary (recycled) materials necessary for the transition to green technology. However, raw materials are lost in part or in full at various stages in the circular economy cycle. This means significant challenges still exist when it comes to realising a more circular economy without continued primary metal production.

With decarbonisation at the core of the green economy and climate action, the switch from fossil fuels means moving to renewable options such as wind energy, solar energy, geothermal energy and battery storage. However, society's awareness is perceived as low that all of these processes are reliant on using a wide variety of metals and minerals. IGI highlights Europe's 75% import dependence for almost all metals and up to 100% for some critical minerals. As consumption increases, more mineral exploration will be required to help meet future demands.

The context for this is multifaceted; mineral production in Europe is already lagging behind the

rest of the world, and declining (down 19% between 2000 and 2018) yet demand for minerals and metals has reached an all-time high, driven by population increase, advances in modern technologies and the move towards a low-carbon economy.

Ireland attractive for exploration, investment & careers

Ireland is a major international source of zinc, ranking fourth in Europe for zinc production. The Republic of Ireland and Northern Ireland are consistently ranked highly in terms of Investment Attractiveness (Fraser Institute, 2021) for mineral exploration, currently 2nd and 6th in Europe respectively.

Ireland can offer more. Strong potential exists to further explore for zinc, in addition to other known metals critical to the green economy which are also found on the island including silver, gold, copper, lead, lithium, barytes, antimony, cobalt, Platinum Group Elements and Rare Earth Elements.

Like the energy sector itself, the profession is also evolving, and Irish geologists have a frontline role to play in the green energy transition. Geologists are adapting to work in green energy technologies such as geothermal energy, carbon capture and energy storage. In doing so they are bringing their significant wealth of knowledge and skills to these technologies and are helping drive the change to a more sustainable future.

John Barry of the IGI said:

"Renewable energy to mitigate climate warming is not possible without metals. Mineral exploration and mining are essential to ensure supply of these metals. The link between mining and our civilisation can be traced back as far as the Stone Age. Ironically, over time, the critical role of mining has become less recognised in an increasingly technological world. A world which is increasingly reliant on these critical metals.

"IGI is encouraging people to find out about mineral exploration and mining, which are highly regulated in both the Republic of Ireland and Northern Ireland. A growing demand for consumer technology and essential infrastructure relies on new supplies of metals and minerals. IGI's new factsheets highlight the link in practical examples for the public.

"The availability of data-led, scientific information from IGI represents an important step in countering misconceptions and misinformation, so that the geologists' work to identify and develop Ireland's future mineral resources is understood and acknowledged by all."

Notes to Editors:

- **Independent research** shows direct expenditure on mineral exploration in Ireland averages about €26m per year, while metal mining annually contributes approximately €550m directly to the economy as well as a further €230m in gross added value. (Source: Indecon Report – An Economic review of the Irish Geoscience Sector, November 2017).
- **The Republic of Ireland**, at present, only has two operational underground mines, Tara Mines zinc-lead mine in Navan, Co. Meath and the Drummond Gypsum Mine in Co. Monaghan. Tara Mines has been in operation for over 40 years and is the largest zinc mine in Europe.
- **Northern Ireland** currently has one active underground mine operated by Irish Salt Mining and Exploration, mining salt at Kilroot in Co. Antrim since 1965.
- **Recently closed zinc-lead mines** at Galmoy in Co. Kilkenny and Lisheen in Co. Tipperary provide excellent examples of the effective management and winding down of operational mines while having a positive impact on their surrounding areas. Over the course of its 16 years of operation the Lisheen mine added €1.3 billion in gross value to the Irish economy, while creating 350 direct jobs. A wind farm which powered the mine in its latter years and the whole town of Thurles has been added to and continues to supply enough electricity to fully power 70,000 homes or nearly the city of Galway.

About IGI

The Institute of Geologists of Ireland (IGI) was founded in 1999 to promote and advance the science of geology and its professional application in Ireland; and to ensure that its members uphold, develop and maintain the highest professional standards through professional accreditation. The IGI is an all-island body representing 316 members across the mineral exploration, mining, hydrogeology, environmental, energy and geotechnical disciplines. www.igi.ie