

Greenside Lead Mine

Smart heritage destination – feasibility study



Juliana Sutanto and Edward Truch

Connected Communities Research Lab

Authors

Juliana Sutanto

Professor in Information Systems
Lancaster University Management School
www.lancaster.ac.uk/lums/people/juliana-sutanto

Edward Truch

Professor in Management Science
Lancaster University Management School
www.lancaster.ac.uk/lums/people/edward-truch

Researchers

E-Business and Innovation MSc students at Lancaster University Management School
Kelly Chi
Juwairiyah
George Mande
Razak Nganga
Envy Xie
Alkhopila Zulhazmi

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Tim Clarke
Michelle Castles
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Connected Community Research Lab

www.connected.community

Lancaster University Management School

www.lancaster.ac.uk/lums

Cover image – Greenside Lead Mine, Glenridding, Ullswater, Cumbria. Source: en.wikipedia.org



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Executive Summary

A feasibility study was carried out in the summer of 2018 by Lancaster University Management School postgraduate students and the Connected Communities Research Lab for the Patterdale Parish Council with support from Ullswater Steamers (Lake District Estates) and the John Muir Trust. The report examines whether the heritage of the Greenside Lead Mine should be preserved and if so how.

Over the last few centuries the Greenside Lead Mine was the main driver of the development of Glenridding and Patterdale villages and communities. After its closure in 1962 much of its infrastructure and equipment above ground was removed and little evidence is left of its rich heritage. Most visitors and many residents in the Lake District are unaware of its existence. The market research conducted including two community meetings held during the course of this project all clearly indicate that the local community across all age groups considers it to be of great importance to preserve the memory of the mine and the people's lives that were intertwined with its history.

Some differing viewpoints and potential tensions were identified within the wider community. On the one hand, local businesses wish to generate more income, and on the other hand, many local residents do not want more traffic either on the road leading up to the mine or within the village itself. In many cases business owners and employees are also local residents. The report considers these issues and the proposed solutions take these concerns into account.

Education is a key element of preserving heritage and the one-day sKoolation event held at the Patterdale C of E Primary School not only confirmed the pupils' desire to have an exciting heritage centre, but also provided many insights for the future vision of such a centre.

In exploring potential designs for the Greenside Heritage Centre and visitor destination, the research studied many museums and mining-related heritage centres from around the world. A

review of smart technologies with some current use case examples demonstrates how new and emerging technologies can provide exciting solutions that appeal to visitors of all ages and in many cases can be implemented at relatively low cost when compared with traditional museums and heritage centres.

Several alternative future scenarios for the centre have been developed to help consider different options for the creation of new heritage facilities at or near the mine as well as in Glenridding and Patterdale villages. Key negative factors to take into account are the structural instability of the mine itself, making it currently impossible for visitors to visit the mine, and problems related to access to the mine. Positive factors include the potential very high throughput of visitors - about 400,000 visitors pass through Glenridding every year - compared to the relative isolation of most comparable mines in the region.

The business case for establishing one or more of these options was considered with the main criteria being maximising benefits for the local community and, at the same time, being financially viable and sustainable in the long term. Two of the most favourable options identified are those of a community-based project either run independently or in partnership with local Ullswater businesses and the Lake District National Park Authority (LDNPA). It is also considered that every lead mine in the region has its own Unique Selling Point, thus providing potential for a regional approach for marketing and developing such centres.

In summary, the study has established that there is a demand for preservation of the Greenside Mine heritage amongst visitors and residents alike. The report suggests options for location and design of such a heritage destination. The financial analyses point towards the long-term viability of such a project provided it is built to an optimal scale that balances size with available resources. Ways of realising the vision of a vibrant and successful heritage centre are explored and practical steps towards implementation are suggested. The creative use of smart technologies

is proposed as an effective means of telling the story of the mine and the mining community without the need to actually visit the mine underground. Whilst in the initial stages the focus of such a centre could be on the Greenside mining community, other heritage options could also be integrated into the project concept, thus providing a truly diverse heritage destination and experience. The economic potential of having an all-year-round, wet weather visitor resource centre in Ullswater should not be underestimated.

Introduction

The feasibility project was developed by Tim Clarke representing the Patterdale Parish Council in collaboration with Edward Truch and Juliana Sutanto of the Connected Communities Research Lab, Lancaster University Management School. Research was carried out by six postgraduate students on the E-business and Innovation MSc programme.

The project was conceived in the context of the recent inception by UNESCO of the Lake District as a World Heritage Site. This includes particular obligations in relation to Industrial Heritage.

The World Heritage Site application states: “Protection and management of the English Lake District nominated World Heritage site and its attributes will require full and informed involvement by the local communities in the area. The National Park Authority is developing a system of community-based management covering all of the 13 valleys.”¹

The Patterdale Parish Council resolution in January 2018 provided the mandate for this study. The terms of reference are set out in the section below.

Terms of reference

The Greenside Lead Mine used to be the lifeblood of the Glenridding community. More than 200 years of history of exploitation of the lead ore from the mine ended in 1962 when the mine closed. Today, there are hardly any members of the local community with any direct knowledge of life down the mine. In 2017 the Lake District was designated a World Heritage Site with an obligation to preserve its natural and industrial heritage.

The primary objective of the project will be to provide a Business Model for the creation of a Greenside Mine Heritage, Education and Learning Centre. The centre, and any associated developments could provide a major boost to the local economy. The students’ work will feed in directly to the planning process to make the project a reality. A particular added value they could bring is the application of smart technologies and innovation to mining heritage. Their report at the end of the project will be used directly by Patterdale Parish Council to pursue the project.

History of Greenside Mine²

Greenside Mine (also referred to as *Greenside Lead Mine*) was Lakeland's largest lead mine with a history spanning from around 1696 until its closure in 1962. The mine was west of Glenridding village, which is by the southern end of Ullswater in the parish of Patterdale. In 1940s, it was the largest producer of lead ore in the UK. Galena was the chief ore mined at Greenside Lead Mine, it had an exceptionally high silver content around 15-30 ounces per ton of ore. During its working life, the mine employed hundreds of miners and support services. The miners built cottages, supported the church (the communion plate and cup is made with silver from the mine), and

¹ Lake District Nomination Dossier, Volume 1, Section 3.0. Justification for Inscription, page 491.

² Adams, J. (1995). *Mines of the Lake District Fells*. Clarke, J. (1787). *A survey of the lakes of Cumberland, Westmorland, and Lancashire*.

Murphy, S. (1996). *Grey Gold*.

Shaw, W.T. (1975). *Mining in the Lake Counties*. Other online sources such as Wikipedia, Patterdale website, and Ullswater Steamers website.

helped building the school. When the mine closed, it had a huge detrimental impact on the community including a sharp decline in the number of pupils at the school from over 100 pupils in 1950s to less than 20. Many cottages became holiday homes.

The history of Greenside Mine can be traced back to 1696 from a lease for the mining rights at Hartsop Hall Mine. The parish registers recorded the burials of 'a washer of ore' in 1713 and a miner from Derbyshire in 1754. A census in Patterdale in 1787 recorded 16 miners out of a male population of 165.

After **William Sheffield Esquire**, the mineral agent to the Duke of Devonshire, abandoned the mine some time before 1819, the **Greenside Mining Company** was formed in 1820s to reopen the abandoned mine following an initial investigation that the Greenside vein was very rich. Four local businessmen were behind this venture, led by Thomas Cant, a successful grocer in the nearby town of Penrith. Soon after the company began its mining operations, two local landowners claimed the mineral rights of the area. In December 1826, they came to an amicable agreement of joint ownership of a defined area around the mine and equal shares of the royalties from the produce of the mine.

In 1855, **Ullswater Steam Navigation Company** was founded. The steam boat moved mails, workers who are mostly miners, lead, and goods between the Greenside Mine and the village of Pooley Bridge at the opposite end of the lake. The steamers are still in operation, connecting points-of-interests around Ullswater under the new name **Ullswater Steamers**.

Until 1880, shareholders of the Greenside Mining company enjoyed very healthy dividends from more than 60,000 tonnes of ore that were mined from Greenside. In 1880s, during the long depression, the lead price had fallen by 50% as a result of large-scale imports of cheap foreign lead. No dividends were paid to shareholders for seven years (1881 to 1887). At the same time, there were changes among the shareholders of the

mine. The new directors, led by Robert Bradshaw Smith and John Pattinson, began to increase production and cut costs. At a time when many British lead mines were closing, these men decided to face the financial challenges and keep the mine working. The mine returned to profitability and began paying dividends again in the financial year 1888/89.

The **Greenside Mining Company Ltd.** was created in October 1889 to give shareholders the protection of limited liability. The new company employed an experienced mining engineer as their chief mine agent, Captain W.H. Borlase. He successfully improved production rates by introducing the latest technical innovations such as electrical power and equipment to the mine. In 1903, the company set up its own road haulage business to transport out the lead and silver produced and transport in coal, timber, explosives and other supplies. The **Penrith and District Road Carrying Company** was formed and operated two steam wagons with several trailers.

World War I in 1914-1918 pushed up the demand for lead, but the output for the mine fell due to poor ore, a shortage of miners, and two very dry summers. By 1918, production fell to 600 tons per year. The company went into voluntary liquidation in November 1920.

Captain Borlase, who had retired in 1919, proposed a new investment by the old shareholders and negotiated new terms with the landowners. The old shareholders agreed to a reconstruction of the company. The new 1923 Greenside Mining Company Ltd. came into being, and the landowners agreed a rent of £225 per year for five years, with a reduced scale of royalties payable on top of the rent. The mine returned to profitability during the 1920s. But in 1927 disaster struck - a reservoir dam burst due to a storm and flooded Glenridding. The company paid compensation to the Glenridding community of over £4,500 which was several years' worth of profits. With the mine without an electricity supply, the company rebuilt the burst dam with a new concrete one, which also burst in August 1931. In the same month, one of the shafts of the

mine collapsed, and collapsed again in December 1933. All these incidents combined with the falling lead price in the 1930s led the company into liquidation in March 1935.

In 1936, the British Metal Corporation (BMC) with a subsidiary of Associated Lead Manufactures Ltd. formed the **Basinghall Mining Company** to explore the possibility of purchasing Greenside with a two-year option on the mine, believing that it had only failed from a lack of working capital. An increase in the lead price in late 1936 was a deciding factor for the company to purchase the mine in 1937 from the liquidators. At that time Glenridding was connected to the national grid making the mine less reliant on its own electricity generation. By 1940, Greenside Mine had become the largest producer of lead ore in the UK. In 1941, over 220 people were employed at the mine, and the production peaked at over 5,000 tons of lead per year. However, this did not immediately translate into profits because of the high costs to repair and further develop the mine.

When World War II began in 1939, lead was a nationally important commodity, and the wartime Ministry of Supply wanted to take over the mine and acquire its entire lead output. A contract was agreed in July 1942, under which the Ministry paid for the operating costs of the mine, for all approved development work and for any plant or equipment needed. The company continued to run the mine on behalf of the Ministry, and was paid 30 shillings in lieu of profits for each dry ton of lead concentrates. Poor labour relations at the time led to an unofficial strike in 1942; the men on weekly rates eventually received an increase of 2 shillings per day following a similar settlement in the West Cumberland iron mines.

In May 1943, as one of the shafts was being deepened, the miners encountered bands of soft, black shale. It was soon confirmed that the Skiddaw Group of rocks lay at about 217 fathoms (397 m) below the main entrance to the mine (The Lucy Tongue Level), not at 300 fathoms (550 m) as the geologists had predicted. The expected rich bonanza of ore was not there. A

number of Italian prisoners of war were employed to try to trace the outcrop of the Greenside vein, but like other efforts they ended in failure. A thorough review of the geology by the British Geological Survey in February 1944 pointed the way to some small deposits of ore but confirmed that no major extension to the reserves existed. The Ministry of Supply returned the mine to the company in June 1944.

At the start of 1950's the mine was getting increasingly difficult and expensive to work. The depth now had reached 430 m. The vein was not yielding as much ore as it used to. In 1954, a new company **Greenside Mines Ltd.** was set up to run the mine. In the years around 1958, there were substantial increases in the price of lead and better mining technology, but attempts to find ore to the north and south of the mine were total failures. Another tragedy struck - a fire in the North Shaft filled the lowest workings with deadly gases and caused the deaths of four men.

The last of the ore was stripped out in April 1961, equipment was sold off, the mill was demolished, pipes, aqueducts and power lines were removed from the surrounding hillsides, the openings of the mine were sealed, and a concrete plug with drainage pipes within it sealed the Lucy Tongue Level. More men were made redundant when the 'closure work' was completed in December 1961. A miners' hostel was converted into a Youth Hostel. The final twelve workmen were paid off in January 1962, and the office keys were handed over to the landowners' solicitors.

Since 1962, the mine has been a permanent drain on limited financial resources, with funds needing to be invested in environmental protection and other measures to stabilise the mine tailings. No wealth-creating opportunities have so far been proposed to offset these costs.

Mining Museums and Heritage Centres of Cumbria and Lake District

There have been some local efforts to show archive material of the mine through temporary exhibitions and lectures held in Glenridding Village Hall, and at Threlkeld Museum, notably using material supplied by Warren Allison and the Cumbria Amenity Trust Mining History Society (CATMHS) association. However, there has been no comprehensive attempt to create a permanent heritage centre to celebrate and honour the mining community. Elsewhere, there have been a number of initiatives to create mining museums and heritage centres in Cumbria and the Lake District.

- [Honister Slate Mine](#). Located at the head of Honister Pass in the centre of the Lake District, Honister is the last working slate mine in England and home to the iconic Westmorland Green Slate. It was closed in 1987. Ten years later, in 1997, the mine was purchased by a local businessman - Mark Wier - who transformed it into a tourist destination³. Honister Slate Mine offers a range of indoor and outdoor adventures for a range of ages and abilities which include underground tours and via ferrata climbing routes where visitors use a safety harness to scale a cliff path which was the original miners' tracking path. Honister Mine was featured in the 2011 BBC television programme *Tales from the National Park*. The television programme followed the owner Mark Weir and his attempt to open a zip wire from the top of Fleetwith Pike to the mine below. The planning application was eventually refused by the LDNPA on the grounds of impact⁴.
- [Threlkeld Quarry & Mining Museum](#). Situated three miles east of Keswick, Threlkeld quarry was opened in the 1870s to supply railway ballast to the Penrith-Keswick line. When it was closed in 1982, the demolition contractors removed everything saleable. Ten years later, Lakeland Mines and Quarries Trust negotiated a lease with the intention of developing a museum on the site. In 1995 the Trust was wound up, handing over the Museum's future to the Museum Company (the trading arm of the Trust) which is now running the site. The Caldbeck Mining Museum joined the project in 1995, so that both quarrying and mining aspects of the local industrial past could be displayed. The Museum is run by a group of volunteers offering mine tours and mineral panning among other activities.
- [Nenthead Mines](#). Located near Alston in Cumbria at the heart of the North Pennines Area, Nenthead village was the centre for lead and silver mining industry in the North Pennines. The mines in the village were closed in 1961. The village is now a tourist destination. Nenthead Mines Conservation Society is a volunteer charity which cares for the site. Carrs Mine is an old lead and zinc mine which is open to visitors on special days. The NMCS volunteers provide guided trips into the mine. In 2014, the local community won a Heritage Lottery Grant to transform the historic chapel on the site into a cafe and community hub⁵. The chapel project is a community social enterprise and will be owned and run by community shareholders. In 2015, the community raised additional fund through Crowdfunder⁶. In 2016, the community organisation was awarded another Heritage Lottery Fund. The renovated Nenthead chapel is due to open later in 2018⁷.

³ <http://www.ingr.co.uk/honister.html>

⁴ https://en.wikipedia.org/wiki/Honister_Slate_Mine

⁵ <http://www.cwherald.com/app.php/a/archive/high-sheriff-s-stamp-of-approval-for-nenthead-plan.423914.html>

⁶ <https://www.crowdfunder.co.uk/nentheadchapel>

⁷ <http://www.hexham-courant.co.uk/news/17m-facelift-nears-completion-at-Nenthead-chapel-b349431c-cf6c-4855-a568-92dd053b2225-ds>

- [Force Crag Mine](#). At the head of the remote Coledale Valley, 7 km west of Keswick above Braithwaite, Force Crag Mine was the last working metal mine in the Lake District. It was closed in 1991. The National Trust which owns the site restored visitors' access to the processing mill buildings and machinery in 2004. There is no access to the mine itself.
- [Millom Museum](#). Located on the north shore of the estuary of the River Duddon around 7 miles north of Barrow-in-Furness in southwest Cumbria, Millom was an iron-mining site until 1968. Millom Museum presents a snapshot of the past, paying particular attention to the historical development of the area brought by the significant iron ore mining and iron works⁸.
- [Killhope](#). Park Level Mine at Killhope was one of many mines in the North Pennine dales. It was closed in 1910. Seventy years later, in 1980, restoration of Killhope started. In 2013, it received Heritage Lottery Fund for conservation work and improving visitor facilities. Today it is the most complete lead mining site in Britain, an established heritage attraction that has a successful education offer for schools. Killhope is a multi-award winning 19th century mining museum, where visitors can experience the life and work of the lead mining families of the North Pennines.
- [Coniston Coppermine](#). In 2016, the Coniston Copper project received a £455,000 grant from the Heritage Lottery Fund (HLF). The project will take place until 2018 to repair, stabilise, and reconstruct ten structures at two sites. The project is a partnership between LDNPA, land owners, Grizedale Arts, YHA Coniston, Ruskin Museum, and CATMHS.

Case for Preservation

Market Research

Some fifty face-to-face interviews were carried out during June and July 2018 with local residents, tourist visitors on board steamers, business owners and managers. The findings are summarised as follows:

Local Residents

- A large majority are in favour of preserving the heritage of the mine and the local community
- Several had reservations about a visitor centre being located at the entrance to the mine due to concerns about additional traffic on the road leading up to the mine
- Most would welcome a heritage centre in Glenridding located at the Village Hall or in the car park area
- Most would prefer to avoid increases in visitors travelling by car due to the shortage of parking spaces

Public Meetings

Two public meetings were held for residents and businesses in the Patterdale Village Hall on 11th June and 26th July 2018

Local Businesses

- Their views generally reflected the views of local residents, many of whom work in the businesses
- They would welcome the expected additional business generated
- Many would be happy to host heritage information and some exhibits on their premises, particularly cafes and shops

⁸ <https://en.wikipedia.org/wiki/Millom#Landmarks>

Visitors

- Some two-thirds of the visitors interviewed on the Ullswater Steamers were not aware of the existence of Greenside Mine in Glenridding
- Reasons cited for visiting were mostly to relax and enjoy the landscape – they did not perceive the Lake District as a heritage destination
- All were in favour of having a visitor attraction such as a museum or visitor centre to preserve the heritage of Greenside Mine and the Glenridding Village in general
- Some felt that a visitor centre would be a good option for bad weather
- There was an overwhelmingly positive response towards the use of smart technologies especially amongst parents and grandparents with children. Most were familiar with virtual reality (VR) technologies
- Some like the idea of joint tickets with the Steamers. Many favoured being given different options
- Visitors expressed willingness to pay a £10-15 entry fee per person

The survey and consultation findings are summarised in the chart below:



School pupils' vision of Heritage Centre



We conducted a **skoolathon** event on 26th June 2018, involving 33 pupils at the Patterdale C of E Primary School. This one-day event consisted of three activity streams:

The Storytelling Stones

The children were provided with stones taking from the beck leading from Greenside mine. They then chose one stone and 'listened' to the stories that their stones are telling them. They painted their stones based on the stories of their stones.

Enactment of working in the mine

In this activity, the children were told the story of the miners, including children miners. They were then encouraged to develop their own 'mining scenarios' for a re-enactment play that could include singing and dancing. We compiled their re-enactment plays the video below.

<https://youtu.be/FdYIlsDjf84>

Designing the future Heritage Centre

We demonstrated the use of Padlet (www.padlet.com) as a platform for collaborative design. Children used Padlet to create their vision of what a heritage destination could consist of. Their extraordinarily creative visions, ranged from a mining-themed park, an adventure mining tour, an interactive museum, and a mining-themed café.



Business models

Examples of community-based initiatives

Possible organisational forms include:

- Company limited by guarantee. Can be registered as a charity
- Community Interest Company (CIC)
- Community Benefit Society (CBS)
- Community Interest Organisation (CIO)
- Cooperatives

Examples of non-conventional museum places:

Lindford Village Hall – a former village hall transformed into a museum. They organise book readings and other different events in the current museums⁹

Heptonstall Museum – a former Grammar School converted into a museum. Many features of the building remain, including the original school desks and books. Displays in the museum include the tale of Cragg Vale Coiners and the Battle of Heptonstall during the English Civil War¹⁰

Hall School Museum and Heritage Centre – a former school transformed into a museum and a heritage centre. No other multipurpose for the current location¹¹

Bièvres Museum and Community Centre – an architectural initiative saw the museum being expanded, having added a new space that acts as a community centre. However, each section is separate¹²

In recent years, a new type of business model has emerged, one that is extensively focused on community control and benefits. Since the key aspects of the project are related to the heritage of the Greenside Mine, in the context of the Glenridding village, the concerns and the impact on the community is crucial. Therefore, in the following section, a list of successful community-based initiatives are presented. As mentioned above, these models should not merely be copied

for the Greenside initiative, but provide a source of inspiration for the extensive options that are available for the project.

In order to standardise the examples and make them easily comparable, the following categories have been analysed: the amount and type of funding received; the involvement of the community; type of business model chosen; the impact on the community; and plans for the future.

Mining heritage initiatives in Cumbria

Threlkeld Quarry & Mining museum

Organisation Type	Mining Museum
Amount	around £75,000
Award Date	Aug 1992
Location	Threlkeld, Cumbria
Ownership	Charity

Situated three miles east of Keswick, Threlkeld quarry was opened in the 1870s to supply railway ballast to the Penrith-Keswick line. When it was closed in 1982, the demolition contractors removed everything saleable. Ten years later, in 1992, Lakeland Mines and Quarries Trust negotiated a lease with the intention of developing a museum on the site. In 1995 the Trust was wound up, handing over the Museum's future to the Museum Company (the trading arm of the Trust) which is now running the site. The Caldbeck Mining Museum joined the project in 1995, so that both quarrying and mining aspects of the local industrial past could be displayed. The Museum is run by a group of volunteers offering mine tours and mineral panning among other activities. For 20 years, the museum was run

⁹ <http://rural-life.org.uk/html/Exhibits/VillageHall.html>

¹⁰ <http://museums.calderdale.gov.uk/visit/heptonstall-museum>

¹¹ <http://museum.hall.act.au/about.html>

¹² <https://www.dezeen.com/2015/11/08/community-centre-elderly-hall-marchi-architectes-museum-extension-french-village-bievres/>

entirely by unpaid volunteers, whilst currently they have two permanent paid members of staff.

Threlkeld Museum has received European Funding in the past in order to purchase the locomotive 'Ruston 48 DL'. However, the owner of that time described the process as '*a nightmare that I do not intend to re-create in the future*' – mainly caused by administrative procedural issues.

In terms of revenue generation, they have three main streams: tickets sold from the mine tours; tickets sold from the train tours; tickets sold as an entrance fee in the museum; additionally, they sell souvenirs, but not at a successful rate.

The community involvement is minimal. There are some local volunteers, but as yet no major economic impact has been created in the area. They have approximately 7,000 visitors per year, mostly from school children and bus tours. All in all, the community impact and involvement are minimal.

Nenthead Mines

Organisation Type	Mining Museum
Amount	£160,000
Award Date	1996 and 2016
Location	Nenthead, Cumbria
Ownership	Charity

Nenthead Mines is a historic site near Alston, in Cumbria, UK. This remote valley is covered by the remains from the lead and zinc mining industry of the North Pennines, including mine entrances, watercourses, dressing-floors and buildings. The site is famous for its geology and is notable for rare lichens and plants growing on the metal-rich mine dumps. Most of the valley is a Scheduled Ancient Monument.

They are entirely volunteer -based and are registered as a charity run under the name of 'Nenthead Mines Conservation Society' (NMCS). They have scheduled open dates when visitors can visit the mines and require a £5 participation donation. Their entire revenue stream is run by donations and contributions from outside.

They have been awarded £77,000 in 1996 to create the Heritage Centre, while in 2016 they have gained another £80,000 in funding from HLF in order to restore and renovate the existing centre and offer a better experience to the visitors. Still, the community involvement and impact has been rather low, and the whole initiative had financial problems in 2011. It needed to be temporarily closed for a brief period.

Force Crag Mine

Organisation Type	Mining Museum
Amount	Unknown
Award Date	-
Location	Force Crag, Cumbria
Ownership	Charity

Similar to Threlkeld and Wanlockhead, visitors need to make the decision to travel to Force Crag, as there is no parking option and the road conditions are treacherous. They are a charity that tries to preserve the heritage of the lead and zinc mining works that were carried out in the area.

The mine closed down in 1991 after rainstorm flooded the mine. Since then, volunteers tried to rescue the remaining equipment, and currently, they have 6 open days in 2018. Besides that, the impact on the community and their involvement is very low.

Heritage-based and community-led initiatives in Cumbria

South Tynedale Railway Preservation Society

Organisation Type	Community Transport
Amount	£4.5 million
Award Date	Aug 2015
Location	Alston, Cumbria
Ownership	Charity

Set up in 1983, the volunteers at South Tynedale Railway Preservation Society have created the largest single tourist attraction in two of the UK's top 10% most deprived rural areas. Its 350 members, 70 volunteers and employees are largely drawn from the local area and have a strong understanding of the challenges faced by their community.

The Society operates a 3.5 mile narrow gauge steam railway that they hope to extend and connect to the main rail network. This would significantly increase visitor numbers to the area, create jobs and reduce the isolation faced by villages in the region. As a first step, the society has secured £4.25m funding from Heritage Lottery to extend the existing line by 1.25 miles, improve facilities and run environmentally-friendly trains.

The railway attracts tourists to a remote and isolated region. In doing so, it is bringing new income to the area, creating employment and supporting the sustainability of local services, such as the community hospital and shops.

'It's our community that make the railway so special - the volunteers who give us their time, our members who help drive the business forward and local people who give us unyielding support' - Brian Craven, Deputy Chairman.

Millom Discovery Centre

Organisation Type	Heritage Centre
Amount	£160,000
Award Date	2015
Location	Millom, Cumbria
Ownership	Charity

Millom Discovery Centre is located in the Victorian Station building. It houses a very informative local history museum, tourist information point, and craft outlets. It operates as a heritage centre that preserves the history of the village.

The project has similarities with the Glenridding initiative. While the mining is an important part of the museum, it incorporates the whole heritage of the area by encompassing local poets, life in the Victorian era, RAF's involvement and the 2nd World War, in addition to many temporary exhibitions.

Similar to Glenridding, the initiative has a very convenient location (inside the rail station). Moreover, it is financially viable, as it managed to receive £160,000 from various funding bodies in order to include technology in their offering.

Moreover, as opposed to the Mining initiatives, which mostly rely on personal initiatives and involvement, this Discovery Centre created employment opportunities in the village and managed to have a high-level involvement from the local community. Therefore, the Millom Discovery Centre might represent a good model for Glenridding, at least regarding community involvement and funding.

Fairfield Mill

Organisation Type	Community Heritage
Amount	£4.5 million
Award Date	Aug 2015
Location	Sedbergh, Cumbria
Ownership	Charity

Fairfield was a woollen Mill until it ceased production in the early 1990's after 156 years of textile production. The Mill was rescued by a group of devoted locals and enthusiasts, keen to continue the industrial heritage and traditional skills of textiles. This group set up the Charity 'Sedbergh and District Buildings Preservation Trust' and together they bought, restored and finally opened Fairfield as an Arts and Heritage Centre in 2001.

Its Mission statement is:

To position Fairfield Mill as a leading Cultural enterprise in the North of England, and a key part of the region's craft infrastructure through its focus on the development of textile and woven art; to provide a context for this through Fairfield's heritage; to enable both emerging and established artists to reach their full potential; to increase the appreciation, number, range and diversity of its audience

The Trust being a charity, it is not allowed, by law, to be a commercial business, so a separate company, known as Sedbergh Enterprises Ltd, looks after all the trading activities, such as the shop, cafe and the weaving operation. The company is set up in such a way as any profit it makes can only be gifted to the trust so any spending, in these areas, is a direct contribution to the benefit of the Mill as a whole.

Community-led national projects**Discover Beighton**

Organisation Type	Community Centre
Amount	£50,000
Award Date	June 2004
Location	Sheffield, Yorkshire and the Humber
Ownership	Private Company Limited by Shared (Ltd.)

The village of Beighton lies on the outskirts of Sheffield and has a population of around 4,700. It has a rich mining and farming heritage and forms part of the earliest working mine area of the South Yorkshire coalfield. Eventus worked with a team of Beighton residents to research and record the heritage of the village. The residents carried out oral history interviews and created a digital archive of local photographs and films.

Forty interviews documenting life in the village were recorded and transcribed. The oral history interviews were deposited in Sheffield Archives and the National Coal Mining Museum where they will be well managed and available for people now and in the future. The heritage is explained through a user-friendly website, book, schools resource pack and village trail leaflet.

The community was heavily involved in the project and had numerous benefits. For example, the creative writing group performed their work publicly as part of Adult Learners Week. The village trail leaflet was picked up in local pubs and libraries, and oral history extracts were featured on Radio Sheffield. The residents felt a greater sense of pride in their village and a stronger sense of belonging, creating a catalyst for regeneration.

At the present time, the initiative has evolved into a healthy community centre called the 'Beighton Lifestyle Centre' that is open daily during the weekdays and a café that operates 6 days per week. None of this could have happened without the catalyst, which was the 'Discover Beighton' project.

Viva Arts and Community Group

Organisation Type	Community Centre
Amount	£220,000
Award Date	December 2017
Location	Soham, Cambridgeshire
Ownership	Company Limited by Guarantee

The Viva Arts and Community Group (VACG) started off in 1997 as a youth theatre centre run by a small team of volunteers. With time, the appetite for community-run plays grew and the Group had to expand their current set of operations. Since they are the only cultural hub in a 20-miles radius, they have had difficulties in raising enough capital to fulfil their plan: convert the abandoned town mill in a community centre.

In this aspect, they have been awarded £220,000 in December 2017 by the organisation 'Power to Change'. In order to receive the funding, they had to analyse the impact of the project on the local community, which had the objectives of creating activities that improve social cohesion, tackling isolation amongst the elderly and young people who are less socially mobile, create additional employment, improve wellbeing and offer social and skill based activities.

Shotley Pier

Organisation Type	Community Centre
Amount	£120,000 and on-going. £300,000 needed in total
Award Date	August 2017
Location	Shotley, Suffolk
Ownership	Community Benefit Society

The Shotley Pier was built by the Marquis of Bristol in 1894 to convey the Royal Mail by ferry between Shotley Gate and Harwich. As time passed, it fell into disarray and was abandoned. In

2016, local people set up Shotley Heritage Community Benefit Society (CBS) to save the pier, raise funds to buy it and restore the pier into a working attraction. The selling transaction was finalised in February 2018, and the works to restore the pier were commenced in June 2018.

The community involvement was very high for this project. Approximately 500 people bought shares in the charity, which cannot be sold or traded, and their value cannot fluctuate. One share was equal to £25, while the maximum amount of shares that can be bought cannot exceed £10,000. Also, they operate with a one member, one vote system to make decisions about the running of the business.

The interest from the community was immense due to the very high issues at stake. The group wants to rejuvenate the pier in order to be used as an attraction where people can stroll, fish, and enjoy the views down the Stour and across to Harwich and Felixstowe docks. Moreover, the objective of the project is to increase the visitors' stay in the area, as opposed to generating new ones. And, as a further plus point, the renovation of the pier will create several apprenticeships to give young people skills to enter the regional industry of coastal civil engineering and stimulate the local economy.

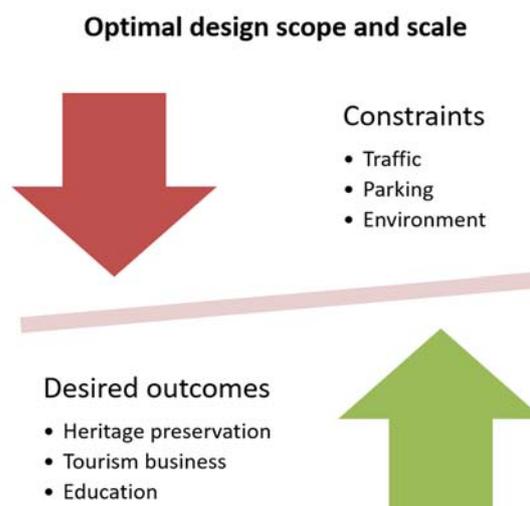
Future Vision

A possible vision of the future Greenside Heritage destination with its various options was developed by considering the needs of the local community, businesses and visitors. These were identified through a series of interviews and public consultations. It was also informed by the ideas generated by the pupils of the Patterdale C of E Primary School, as well as an in-depth review of the latest smart technologies and how they are used in museums and heritage centres around the world.

Design

The design of the Heritage destination needs to be aimed at achieving an optimal scale whereby the scope of the facilities and volume of visitors are balance with constraints such as traffic volumes and income from entrance fees and grants.

The main desired outcomes and constraints are presented in the chart below:



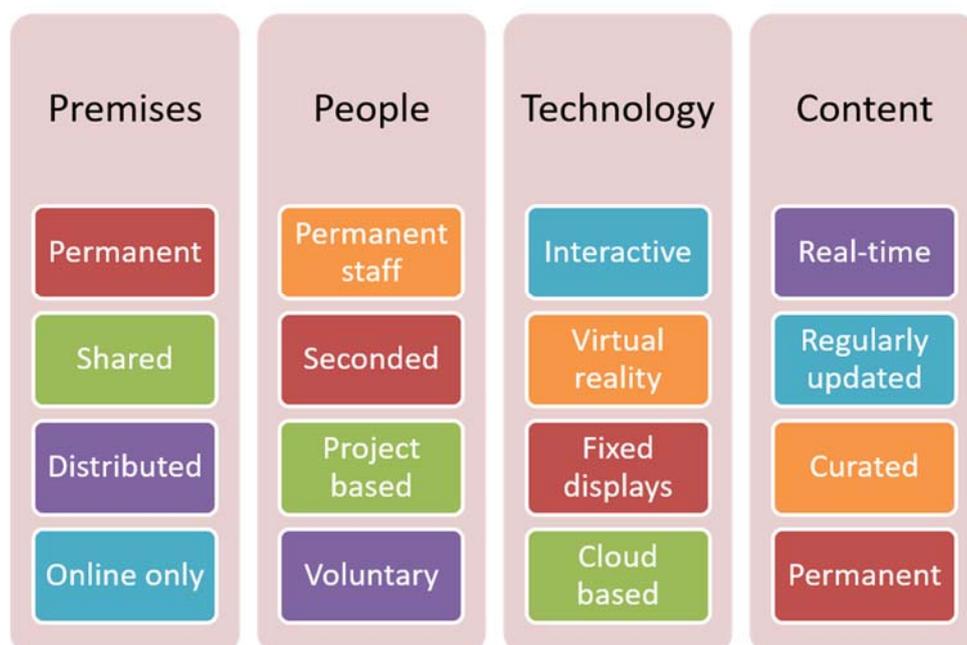
Facility options

The facilities of the Heritage Destination have four major components:

1. Premises
2. People
3. Technology
4. Content

The various options for each of these is described in the chart below.

Heritage destination facility options



Implementation

Financial sustainability will depend on regular and reliable income that is sufficient to fully operate the centre such that it provides a high-quality visitor experience. It also needs to generate an adequate surplus to fund continual innovation and renewal of the centre and its exhibits and other facilities. The aims and future vision of the heritage destination needs to be both visionary and realistic at the same time. In the long-term it needs to continue to attract visitors, volunteers and occasional grants and donations for specific development projects.

Use of carefully chosen technologies can help achieve greater cost effectiveness and avoid the

potential pitfalls of investing in solutions that may not withstand the test of time. It would be advisable to obtain expert advice on a regular basis.

In the long-term, the viability of the project will depend on creating an optimal heritage destination design which balances scale, resources and constraints.

Possible development stages are described in the table below. The optimal scope and scale of the Greenside Heritage destination is likely to lie somewhere on the development scale from Level 1 to Level 6 or a hybrid of several levels.

Heritage Destination development levels

Development levels	Facilities and activities	Resources
6 - Fully featured	Events, workshops, guided tours, games	Front-line staff and guides who interact with visitors
5 - Gamification	Augmented reality and gamification involving physical spaces and objects	Staff who participate Regular content renewal through curation or direct production
4 - Interactive	Virtual reality with goggles and interactive screens	Staff who supervise and instruct visitors. Periodic content renewal
3 - Physical space	Large physical displays and spaces such as replica tunnel and working models and 3D displays and videos	Supervisory staff and move displays in multi-purpose spaces such as village hall
2 – Display only	Film based displays and films on walls and panels. Static displays, interpretation boards, models	Remote monitoring by entrance administration staff
1 – Cloud-based	Website and smartphone apps	Webmaster, app developers and content contributors

Getting from Here to There

Organisational options

In reviewing options for the future design of the Greenside Heritage Destination, it has been assumed that it will not be located at the mine entrance itself for practical reasons such as access, safety and cost. It will, of course, be possible to preserve whatever surface features still exist near the entrances and related workings, but the location of any exhibition centre should be at either a single location within Glenridding or distributed across several premises.

The future heritage destination should also serve to preserve the history of not only the lead mine itself but that of other mines and related social and cultural aspects of life in the surrounding area over the centuries.

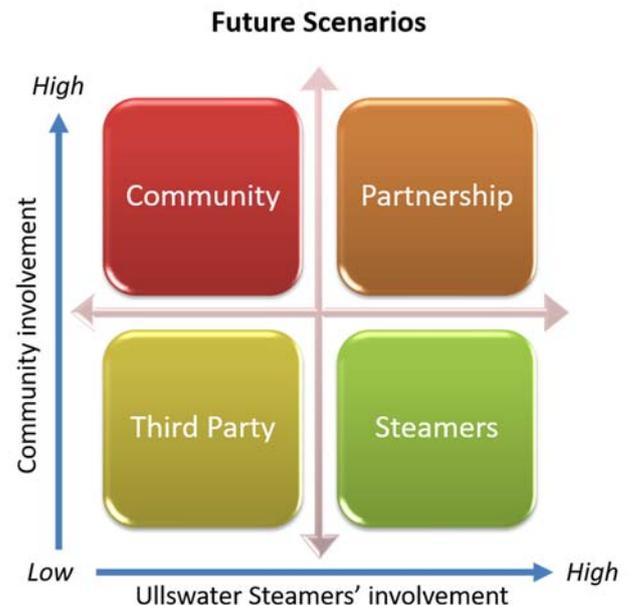
Two key questions that need to be answered when considering future options for the heritage destination are:

1. **Ownership model** - Who is going to own the heritage destination assets and how will they be managed?
2. **Format** - What is the shape, size and location the heritage destination going to be - physical, virtual (online), single location or distributed in different premises?

The availability of funding and people resources that come from volunteers and local businesses will be the main factors that determine the shape and scope of the future heritage destination. These will be particularly important in ensuring the long-term sustainability of the enterprise and ensuring sufficient regular income to maintain and continuously renew the heritage assets to maintain the interest of present and future visitors and keeping the visitor experience up-to-date.

In examining options for the ownership and management model, four possible scenarios have been developed from the local community perspective and explored. These depend on the level of involvement of the local community (residents and businesses) and that of Ullswater

Steamers. These are described in the chart and descriptions below.



SCENARIO 1 - COMMUNITY

Owned and managed by the local resident and business communities

Visitors travel by either road or steamer

All marketing is by the local business community

Sales activities are either on location or online

Any heritage centre facilities such as cafes and shops do not compete with local businesses; rather drive additional custom through joint marketing with a degree of shared income through vouchers and affiliate marketing

SCENARIO 2 - PARTNERSHIP

As Community scenario above and in partnership with Ullswater Steamers and possibly other organisations

Tickets are sold additionally through Ullswater Steamers' sales channels including combined packages leading to greater and more reliable income for the Heritage Destination

SCENARIO 3 - STEAMERS

Owned and managed by Ullswater Steamers (they have not been consulted on this option)

Probably a smaller scale operation to ensure economic viability

May include displays and interactive exhibits on board boats and at piers

Could be extended to a distributed model with exhibits in selected premises such as hotels and shops

SCENARIO 4 - THIRD PARTY

Owned and managed by public and private sector organisations from outside the immediate area, including

- public sector such as Cumbria County Council or Lake District National Park Authority
- Charities such as National Trust and John Muir Trust
- Private enterprises that can make a business case for doing so

Greater reliance on income generated as in the Community scenario above (no.1) but with less community support

In conclusion, Scenarios 1 and 2 are likely to bring most benefit to local residents and businesses. Scenario 1 may need to be on a smaller scale and operated with a more limited budget than that of Scenario 2.

Start-up funding

Start-up funding may come from one or more of the following sources:

1. Grants
2. Shares or donations from the resident and business communities
3. Sponsorship

Details of some of these options are provided below.

LOCAL GRANTS

Cumbria County Council grants – Grants around 1,500; used mostly for small-scale, community-led projects that have a high and instant impact on the local people (i.e. community wheels for the elderly or people with disabilities)

Cumbria Fells and Dales Leader – ‘Support for Cultural and Heritage Activity’ and ‘Support for Rural Tourism’ grants could be up to £200,000. Currently, it is closed for applications but it will re-open next year.

NATIONAL GRANTS

Cumbria Community Foundation – They act as a platform where different grant awarding bodies are listed and can be accessed very simply and efficiently. In terms of monetary amounts, they vary from as little as £500 to more than £50,000, depending on the scale of the project and its impact on the community.

The Cumberland 'Community Fund' - Although it is a bank, they provide grants to community-led projects that have a positive, measurable impact on the local inhabitants. They have donated £100,000 to communities for local projects in 2016.

GLL Community Foundation in Cumbria – Grants up to £5,000 for community-led projects in Cumbria and the UK.

NATIONAL GRANTS

National Lottery Fund (NLF)

- **Our Heritage** - Grants from £10,000 to £100,000. Project could focus on anything from personal memories and cultural traditions to archaeological sites, places of worship, museum collections and rare wildlife. They accept applications from not-for-profit organisations, private owners of heritage and partnerships. If individuals or for-profit organisations are involved, the public benefit from the project must be greater than any private gain.

- **Heritage Grants** - Grants from £100,000 to £5,000,000. The Heritage Grants programme is for larger heritage projects of any kind such as set up an archaeological dig, preserve a historic place of worship, help people learn long-lost traditional skills, look after rare species and habitats, and much more.
- **Heritage Enterprise** - Grants from £100,000 to £5,000,000. Historic buildings can attract thriving businesses and boost economic growth. And yet many lie vacant and derelict because of the high costs involved in rescuing them. Heritage Enterprise can help communities repair derelict historic places, giving them productive new uses. By funding the repair costs and making these buildings commercially viable, they hope to breathe new life into vacant sites. Not-for-profit organisations work with private partners to generate economic growth, and create jobs and opportunities in those places that need it the most.

The architectural Heritage Fund – For the Greenside initiative, these funds could be used to look at the feasibility of the proposed locations. The sum awarded is £7,500.

The Pilgrim Trust – They award grants starting from £5,000 to as much as £350,000 (i.e. Association of Independent Museums). No grants have been awarded in Cumbria, but some have been awarded in the North West region (Merseyside)

Big Lottery Fund

- **Reaching Communities England** - Flexible funding over £10,000 for up to five years to organisations in England who want to take action on the issues that matter to people and communities.
- **Partnerships** - Through the Partnerships funding grants of over £10,000 are made for organisations to take joint action on issues that matter to people and communities.

The Prince's Countryside Fund – Started by the Royal Family, they award grants up to £50,000 for

projects that benefit the local communities in the UK.

Tesco's Bags of Help – A local community grant scheme where the money raised by the sale of carrier bags is being used to fund thousands of local projects in communities right across the UK.

Greggs Local Community Projects Fund – They fund long-term projects that help the local communities

The Henry Smith Charity - The Strengthening Communities grant, awarded to support communities. Grant size from £20,000 to £60,000

INTERNATIONAL GRANTS

International Fund for the Promotion of Culture – Grant body from UNESCO that awards funds ranging from £15,000 to £90,000

European Agricultural Fund for Rural Development (EAFRD) – This fund provides support for rural businesses to start-up, grow and expand, improve knowledge and skills and encourage tourism. Since the Greenside initiative is a heritage destination, tourism is the keyword.

UK Institutions that Support Community Led Projects

CUMBRIAN INSTITUTIONS

Cumbria Local Enterprise Partnership – They provide free advice regarding different aspects of the business processes (such as regulation, legal structure, finance and funding, local premises, etc.).

Cumbria County Council South Lakeland – They provide advice to community leaders that want to set-up such projects.

Cumbria CVS – While they are not a funding body, they provide important advice on the funding methods and what are the criteria that make a strong application.

Groundwork NE & Cumbria – Voluntary organisation that works with local communities to help them deliver their initiatives. Usually, they provide advice and people (volunteers) to support local projects.

NATIONAL INSTITUTIONS

Power to Change – They support community-led initiatives come to fruition.

Aviva Community Fund - Include other types of funding (equity raising, other funding bodies)

Community Composting Network – Acts as a centralised database that contains other organisations that help communities set up their projects

Regular Income

The long-term viability of the Heritage Destination will obviously depend on the amount of income generated on a regular basis by visitors and perhaps other sources such as sponsorship. Such income will need to be sufficient to provide for regular maintenance and upgrading of exhibits and facilities. Additionally, a contingency fund should provide for unplanned events such as

flooding and road closures that may impact economic sustainability.

The visitor number projection has been based on two variables: the market research (conducted on-site and online) and the case-scenarios. As evidenced by the use-cases, depending on the involvement of the Ullswater Steamers in the running operations of the proposed Greenside Heritage initiative, the number of visitors might vary considerably.

In terms of scale of income from visitors, it is not unreasonable to expect an annual income in the region of £200,000. This is based on the assumption that 10% of the 400,000 (source: Cumbria Tourism) annual visitors to Glenridding arriving by boat or road will pay £5 per head per visit. This is a very prudent assessment.

Conclusions

The Case for preservation of the Greenside Mine industrial heritage

There is general recognition within the local community of the importance of preserving the heritage of the Greenside Lead Mine. It was at one time, one of the most important lead mines in Britain. The majority of local residents and businesses support the idea of establishing a heritage centre in Glenridding. This consensus includes people from across all age groups - from primary school children to residents in their eighties and nineties, one of whom actually worked in the mine and many others who have ancestors who worked there.

The Lake District's newly inscribed UNESCO World Heritage status requires the Park Authority (LDNPA) and others to give greater weight to industrial heritage. The LDNPA Local Plan 2109-2034 foresees Ullswater becoming a showcase area.

The Patterdale Parish Council supports the project and has expressed the importance of it being community led. It is felt that as part of the World Heritage Site, it is all the more important to preserve the memory of the mines in Glenridding

and surrounding areas for future generations. Three other key institutions have already given their support in principle – the Ullswater Association (73 private sector interests), the Lake District Estates and the John Muir Trust. Others are likely to follow.

Some reservations have been expressed by local residents. These are mainly due to concerns about increased road traffic to the mine area and limited car parking capacity in the village. These have been considered throughout the study and the suggestions for the design and location of the heritage destination facilities must take these concerns into account.

It is clear from our consultations that the local community and visitors show a real interest in having an innovative and creative facility that is also capable of providing a wet weather opportunity for visitors.

The benefits for local residents, businesses, visitors and the Lake District as a whole could be considerable.

Feasibility

Industrial heritage sites in other parts of the UK operate under various ownership and management models. Most of them, whether council or community owned, are experiencing funding constraints, and some are even facing potential closure. Glenridding is in the fortunate position of already receiving a constant flow of tens of thousands of visitors every year by road and steamer. It is, therefore, not necessary to attract more visitors but simply to offer a new visitor experience to those already travelling to the area.

The junction of Glenridding/Patterdale with the Ullswater Heritage Trail and the Coast to Coast walk, as well as the fact that the Greenside mine is on the main walking route up to Hellvellyn, provides further advantages as a tourist attraction.

Although the Greenside Mine, a scheduled monument, is in a precarious state and is not

suitable for extensive restoration below surface, smart technologies can play an important role in keeping its heritage alive. These new technologies can achieve much more for less cost as evidenced by the many new museum facilities introduced around the world. The Friends of the Ullswater Way have already tried out smart technology on their Heritage trail, and it works well and receives very positive feedback from users.

Any necessary conservation work in the disused mine itself which the LDNPA is obliged to carry out is largely unrelated to this proposed heritage project, although the potential win-win from working in an integrated way are high. Conservation and preservation of Greenside mine itself should aim to be quite separate and economically viable in its own right. Working in partnership with the LDNPA nevertheless would clearly be very beneficial for all parties concerned.

Additionally, there is a marketing opportunity for making Glenridding a regional destination that is linked to other mining heritage sites in the UK and abroad.

Design Options

As the proposed heritage centre is largely independent of the disused Greenside Mine itself, there is no proposal at this stage to reopen parts of the mine. However, a replica section of the mine such as that built at Threlkeld Quarry and Mining Museum would clearly be desirable. Alternatively, it would be possible to create a virtual reality experience for visitors and refer them to Threlkeld for a follow up visit. There is scope for collaboration.

Different location and design options have been considered and one of the best future scenarios that ensures long term sustainability is that of using the Village Hall as a multi-purpose facility, perhaps with a permanent mine tunnel experience in the basement or on adjacent land. This could be supplemented by some distributed elements such as interpretation boards and live display screens in different locations around the village

including various business premises and the Tourist Information Centre which is operated by the LDNPA. There are many successful examples of museum and exploration centres that operate with multi-purpose spaces.

The Patterdale Parish Council is strongly in favour of the heritage centre being a community-led project run by a combination of permanent staff and volunteers. It would appear from the recent public meetings held to consider the project that there is a strong sense that the Community wants to have ownership of the centre working closely with other major stakeholders, notably the LDNPA and Ullswater Steamers.

The initial focus should be on the heritage of the Greenside Mine itself, but in the longer-term it could also cover a broader heritage perspective including the history of farming in the area, the Steamers that originally carried lead ore, and notable historical figures such as Charles Darwin and Donald Campbell.

The market research on community-led initiatives indicates that heritage projects that focus solely on mining heritage are either very small in scale and remain at that level (Threlkeld), or have financial problems or fail altogether (Haig Colliery). The ones that focus on a wider heritage theme enjoy a higher degree of success as they provide a better and more comprehensive offering to their visitors. People are seldom interested in a particular mine itself, but become more interested when that mine is put into the context of the time and, more specifically, what it was used for such as war efforts and industrial or economic enterprises. It is, therefore, recommended that the proposition should be for a Heritage Destination, as opposed to just a Visitor Centre (albeit, the Visitor Centre will be a key part of the Heritage Destination).

Existing lead mine heritage centres in the region use hardly any smart technologies. Provided such technologies are grounded in good educational practice, a Centre using creative, innovative smart technologies could be genuinely transformative for the local economy, with potential knock-on effects for local businesses. It could also be a

powerful tool for attracting younger visitors and families.

Making It Happen

A step-wise approach is suggested. The speed of development and achievement of an optimal scale of operation will be largely governed by the availability of resources including premises, funding and volunteers.

There is an urgent need to start, even with a small-scale project, in order to capture the memories of those who are still alive and can recall life in the Glenridding area as it used to be.

Suggestions for the next steps include: forming a steering group; engaging with potential partners including other mine museums; developing an overall strategy and implementation roadmap; creating a prospectus; fund-raising; and recruiting staff and volunteers.

Implementation should be based on a carefully phased programme whereby each development stage provides a complete solution in its own right and further development stages are embarked on only after preparation of a viable business plan. The underlying objective should be to create a solution of optimal size that matches the needs for the heritage destination with the available resources in a way that ensures the long-term viability of the whole endeavour.

For further information contact

Professor Edward Truch

edward.truch@lancaster.ac.uk

This report forms part of the Connected Communities Research Lab's Smart Parks programme. Further details are available at:

www.connected.community/smart-park

Connected Communities Research Lab

Management Science Department
Lancaster University Management School
Bailrigg
Lancaster LA1 4Y
UK
www.lancaster.ac.uk/lums

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