University of Exeter, Camborne School of Mines
Cornwall Peer Review visit
Background materials

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Image of Cornwall?

**ACTIVE AND OUTDOORS**

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Search our listings of the very best Cornwall has to offer, from walking, cycling and watereports to surf schools, sailing centres and multi-activity centres. Use the left-hand filters to refine your search and help you find exactly what you’re looking for.

You’ll want to make the most of Cornwall’s amazing beaches, rivers, lakes and estuaries with all the fantastic watersports on offer. Walkers will love the diversity of the landscape, windswept moors, coastal cliff top walks, areas of natural beauty and trails through mining heritage landscapes. Whatever your interest be it fishing, adventure sports, horseriding, or just soaking up the atmosphere.

**HISTORY AND HERITAGE ATTRACTIONS**

Explore Cornwall’s vibrant past

Cornwall has achieved international recognition from UNESCO that has credited World Heritage Site status to ten industrial landscape areas which best represent our mining past. Cornwall’s vibrant identity has evolved from history going back 3000 years and a rich traditional culture much of which still lives and breathes through the sites and scenery found throughout the region today. Discover this rich history by exploring museums, ancestral houses, castles and the Cornish Mining World Heritage Site.
But Cornwall is a ‘poor’ region in Europe

In 2000, Cornwall and the Isles of Scilly was ranked joint 194 out of 265 NUTS regions; in 2016 it was ranked joint 204 out of 265 NUTS 2 regions.

Hundreds of tin (and previously copper) mines have reduced to none today. There was little/no investment in alternative industries at the time of the main reduction in mining.
Cornwall today

- Economically, Cornwall is still heavily dependent on agriculture and tourism as the two main sectors.

- Tourism reportedly contributes about 24% of Cornwall’s Gross Domestic Product (GDP), supporting around one in five jobs.

- Connectivity and the installation of superfast broadband has helped Cornwall develop over the past five years. Cornwall has a growing number of digital technology businesses, with growth in this area being one of the highest rates in the country.

Cornwall: a brief description (2015)...

Cornwall is the second largest local authority area in the South West region, covering an area of 3,559 sq. km, and has the longest coastline of any English county at 697 km. It is an area of many contrasts; with varied landscapes including remote rural, coastal and environmentally sensitive areas, interspersed with villages and historic market towns; where affluence sit alongside some of the most disadvantaged areas in England.

697 km is the length of Cornwall’s coastline
3,559 is the area of Cornwall in square kilometres
30% of Cornwall is within an Area of Outstanding Natural Beauty
6% living in shared accommodation
9% are single parents
30% with only one person
55% are couples living together
There are around 9,000 new registrations on the Cornwall Homechoice Register per year, indicating increasing demand
2014 average house price £194,000
Over 10x the average (median) income of £18,354. The Cornwall average does however, mask large variations across communities
8,800 live in communal establishments (1.7%)

Over 40% of the population living in settlements of less than 3000 people
230,400 households
230,400 households with an average household size of 2.27 persons
Cornwall has one of the highest rates in the country of rough sleeping per head of population

Cornwall’s population is growing but growth isn’t consistent across all areas of Cornwall
Over 40% of the population living in settlements of less than 3,000 population
Population likely to increase by 18% over 25 years

Around 68,600 people (12.7% of the population of Cornwall) live in the 20% most ‘deprived’ communities in England. This equates to approx. 34,400 households
15.9% of children in Cornwall live in low income families

Household and Housing

Deprivation is a persistent problem - Cornwall as a whole is not deprived but there are areas where there are very high levels of deprivation and this has not changed for some years

Hidden rural deprivation is not identified by national measures due to the dispersed nature of rural population

Health and Wellbeing

Health inequalities continue in areas of deprivation - higher rates of obesity, teenage pregnancy and levels of sickness and disability benefit claimants are closely linked to areas where there is known inequality

Average life expectancy continues to be generally higher than the national average

For some residents (53,166 people) say their day to day activities are ‘limited at all’ due to a long term health problem or being disabled

11.9% (63,192 people) residents provide unpaid care to a family member, friend or neighbour

Large number of people with mental health needs, as well as a large number of people at increased risk of mental health problems

Cancer, respiratory disease, musculoskeletal problems and cardiovascular disease, cause the majority of deaths

Population and Settlements

Population
545,351
20% are under 18
56% aged 19-64
24% are 65 or over

Population density is the lowest in the England at 1.5 persons per hectare

In-migration is predominately for economic and lifestyle reasons, not retirement purposes

Cornwall’s population is growing but growth isn’t consistent across all areas of Cornwall

Over 56% of the population living in settlements of less than 3,000 people

Population likely to increase by 18% over 25 years

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Environment

Cornwall’s geographical shape and position make infrastructure delivery challenging - Dispersed and sparsely populated settlement pattern combined with Cornwall’s coastline present issues of accessibility and challenges for equal provision of services.

Crime and Disorder

Crime in Cornwall is generally low and is a safe place in which to live and work – despite rises in some areas, crime in Cornwall continues to be low, although fear of crime remains an issue.

Transport

Car ownership in Cornwall is not a sign of wealth – high proportions of car ownership reflects Cornwall's rural nature where conventional public transport is often not viable.

Further details

Further statistical profiles of areas across Cornwall are available via our website. To access these please go to: http://www.cornwall.gov.uk/fsna
2014-2020 Less Developed region

- 64% EU average (2011)
- C.€590m ERDF & ESF
- Peripheral location
- Sparsely populated
- Declining heavy industry
- Ageing population
How much investment has Cornwall & the Isles of Scilly received?

Objective One 2000-2006
Objective One value without match = £350m
Objective One value with UK public sector match = £700m
Objective One + public sector match + private sector match = £900m

Convergence 2007-2014
ERDF Convergence value without match = €458m
ERDF Convergence + match = £950m approx. (from ERDF legacy calculations)
ESF Convergence value = £164m
ESF Convergence + match = £222.4m (from ESF evaluation)

Growth Programme 2014 - 2020
Cornwall & Isles of Scilly Growth Programme value ERDF = £340m
Cornwall & Isles of Scilly Growth Programme value ESF = £130m

Total = £2.5 BILLION
Our REMIX Policy Instrument: Cornwall and Isles of Scilly Local Enterprise Partnership
European Structural and Investment Fund Strategy

The SIF strategy contains three main areas of activity:

‘Future Economy’ which concerns investment to capitalise on regional strengths and characteristics to exploit new and emerging markets, including **smart specialisations**;

‘Growth for Business’ to accelerate business productivity and competitiveness and

‘Conditions for Growth’ to overcome blocks to growth, improve infrastructure and increase human potential. Future economy includes

(1) smart specialisations of Agritech, Digital Economy, EHealth, Marine technology, and Space and aerospace assets and

(2) Activities with growth potential that develop Cornwall and the Isles of Scilly as a ‘green and marine’ region.

The policy recognises that almost all businesses in the region (99.8%) are micro, small and medium sized enterprises and therefore this sector is the key driver of growth and employment. The proportion of micro enterprises is high (87.7%). Also recognised is the challenge of how much lower research and innovation investment in Cornwall and Isles of Scilly than the average elsewhere in the UK.
In REMIX, University of Exeter aims to:

- Enhance implementation of the Digital Economy smart specialisation by recommending how to enable new projects in the mining related sector. New expertise, links to academic research, case studies, and access to high performance computing are required so that the SME sector can take part in using ‘Bigdata’.

- Engage with innovation and best practice in environmental protection and resource efficiency (thematic objective 6) - a topic directly relevant not only to mining companies but to a significant international consultancy sector in Cornwall. Relevant topics include state of the art environmental and social impact assessment, environmental remediation and protection, mining with no surface footprint, improvements and innovation in minerals processing and how best to integrate renewable energy sources into mining operations.

- Enhance the SME sector, e.g. via the Cornwall Mining Alliance, through a better understanding of how the sector can collaborate to boost individual businesses, using examples of good practice.

- Make policy proposals for consideration in post 2020 regional policy instruments.

**Proposed self-defined performance indicator:**

- Engagement of 30 local companies with activities
- Policy and best practice recommendations Cornwall Council for current policy instrument to prepare post 2020 regional policy
Provisional questions for the Cornwall peer review

• Enhance implementation of the Digital Economy smart specialisation
  Question - How can mining-related businesses benefit from the digital economy?

• Engage with innovation and best practice in environmental protection and resource efficiency (thematic objective 6)
  Question - What are the next innovations for environmental and social mining-related businesses?

• Enhance the SME sector, e.g. via the Cornwall Mining Alliance, through a better understanding of how the sector can collaborate to boost individual businesses, using examples of good practice
  Question - How can SMEs collaborate to tackle large contracts?

• Make policy proposals for consideration in post 2020 regional policy instruments.
  Question - What are the big initiatives that Cornwall should take to expand mining related businesses?
By 2030 Cornwall and Isles of Scilly will be the place where business thrives and people enjoy an outstanding quality of life."

To achieve this, the plan outlines three objectives:

**Business:** achieve thriving businesses which excel at what they do

**People:** achieve inclusive growth and improve the skills of our workforce

**Place:** improve infrastructure and economic distinctiveness

**Strategic drivers:**
Innovation and creativity
Productivity led growth

*(No mention of mining)*
Cornwall Council Economy and Culture strategy 2012 - 2020

Slightly older overview document – and here we are:

**
New Local Enterprise Partnership document, 2018 – 10 opportunities

https://www.cioslep.com/vision/10-opportunities

1 Creative
2 Space
3 Energy
4 Food
5 Agri-tech
6 Tourism
7 Marine
8 MINING ***Mining is on the agenda***
9 Aerospace
10 eHealth
Future funding for Cornwall post Brexit

• **UK Shared Prosperity Fund** (scheme to replace EU support)

• **UK industrial strategy challenge fund**

• *Potential/probable* participation in future EU R&I and C&S actions, and others?
UK - national mining

• There is no national ‘mining ministry’ in the UK. Mining is related to the Department for Business, Energy and Industrial Strategy, Department for Environment, Food and Rural Affairs, including for permitting. Ministry of Housing, Communities and local Government. Local planning authorities, such as Cornwall Council are important.

• A UK minerals strategy will be launched on 10 July 2018 – by the Mineral Products Association and CBI (Confederation of British Industry) Minerals Group. This is an industry-led initiative, mainly by the aggregates industry.

• There are other new mines in development, including Sirius Minerals Woodsmith potash Mine that has planning permission to operate in a national park.

• Drakelands tungsten mine (World’s 4th largest deposit) operated by Wolf Minerals was the first new metals mine in the UK for over 40 years when it opened in September 2015 just over the border from Cornwall in west Devon.
Current mining in Cornwall

• World class china clay mines operated by Imerys in the St Austell area, 900 employees, 100 in R&I

• Various quarries for granite, slate, other stone

Discover St Austell - http://cornwallmaps.org/cms/st-austell/sponsors/imerys/
Exploration/development projects

- Re-opening South Crofty tin mine (Strongbow)
- Redmoor tin-tungsten exploration (New Age Resources)
- Lithium in brines in granite (Cornish Lithium)
- Reprocessing of waste on mica dams associated with China clay mines to recover lithium (Imerys)
- Tellus South West geophysical and geochemical survey.
Cornwall has a unique concentration of innovative businesses, organisations & experienced professionals providing services to mining & related industries in the UK & around the world.

**Aim:** to enable specialist mining related SMEs to collaborate on and access large domestic projects & global export opportunities

Created by the Cornish Chamber of Mines & Minerals in response to UK Government initiative

DIT identified High Value Opportunities in global mining sector

Initial funding from the Chamber & CSM, University of Exeter

Directory of professionals in Mining & Minerals Sector in South West

Organisations categorised by service sector (12)

Preferred communication channel for DIT

Run & managed by volunteer steering committee

89 members…..and growing!
Global Mining Services

Cornish mining expertise has been famous throughout the world. Today, we have over 200 companies based in this part of the UK that are involved in all aspects of mining services. This site will help you find the service or solution you need.

Find Out More

Discover innovative services & expertise for global mining industries
Cornwall Mining Alliance

Companies operate in the following areas within the CMA:

- Geological
- Mineral processing
- Mining engineering and surveying
- Environmental and social
- Energy
- Software and digital
- Analysis and testing
- Research and training
- Contractors and supply chain
- Professional support services
- Mines and quarries
- Mining heritage
Higher Education

- Universities Exeter (full service uni.) & Falmouth (arts and media) on Penryn Campus contributed £491 million to economy of Cornwall and IoS between 2002 & 2012. (Penryn Campus is an EU investment)

- University of Plymouth also in Cornwall. Cornwall College, Truro College offer further and higher education

- Camborne School of Mines is one of the University of Exeter departments on the Penryn Campus. 33 academic staff, 15 research staff, ca. 400 UG, PGT, PGR students, Started 1888 alongside the mines, now UK’s multidisciplinary mining school – mining, processing, geology, environmental, social.

- Also Business, Biosciences, Renewable Energy, Maths, Geography, English, History, Politics on Penryn Campus
Cornwall Mining World Heritage site

https://www.cornish-mining.org.uk/

Well worth watching videos

https://youtu.be/uYREWz_qccs
https://www.youtube.com/watch?v=_qydn7Zq5EU

Examples of places in the Mining World Heritage sites:

• Geevor Mine Museum

• Heartlands

• Eden Project
Deep Geothermal Energy

- The deep geothermal resource in Cornwall is an opportunity for renewable heat & power generation and collaboration with mining-related activities.
- The ‘Hot Dry Rocks’ study led by CSM in the 1970-80s confirmed high temperatures in granite.
- Potential for significant economic & community benefits.
- Expense & uncertainty has prevented further exploration…until now.
- ERDF funding (Cornwall and Isles of Scilly growth programme), Cornwall Council & private funds have enabled a project at United Downs near Redruth, led by Geothermal Engineering Ltd.

**Two wells will be drilled in Q2 2018 to depths of 2.5km & 4.5km**

- Local residents have been proactively engaged and PhDs funded on public perception, as well as technical aspects.

- Another scheme at Eden Project, led by EGS Energy Ltd, is awaiting the outcome of funding.

- Meanwhile, there is excitement about Jubilee Pool, Penzance – a geothermal well is being drilled to heat a seaside swimming pool to 35C!
Deep Geothermal Energy

MWm$^{-2}$
- >120
- 110 to 120
- 100 to 110
- 90 to 100
- 80 to 90
- 70 to 80
- 60 to 70
- 50 to 60
- 40 to 50
- 30 to 40

Commercial and community heating

Electricity generation

Two Well System

Fracture reservoir at 160-190°C

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Thank you!