TOWARDS A SUSTAINABLE CORNWALL: STATE OF THE DOUGHNUT

OCTOBER 2020

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I   INTRODUCTION

The complexity of achieving sustainable development requires a new holistic approach to decision-making, one that recognises the interconnectedness between social and environmental factors, accounting for people's needs as well as the natural environment upon which they depend. Recent global events – the COVID-19 pandemic, Black Lives Matter protests, a heightened public awareness of climate and ecological fragility – have arguably reinforced the sense of urgency and complexity of these challenges and made the intersections between these issues more apparent. The challenges of present-day issues such as social deprivation and climate change are rooted in inter-dependent systems that require innovative responses at multiple levels.

As a region, Cornwall is taking strident steps towards addressing some of these challenges, having already embarked on an ambitious agenda to pursue environmental sustainability, as evidenced by Cornwall Council's *Environmental Growth Strategy*, Climate Emergency declaration and action plan, and commitment to a 'Carbon Neutral Cornwall' [1]. At the same time, there is a pressing need to improve living standards among Cornwall's residents, many of whom live in areas of high multiple deprivation [2].

Cornwall Council has identified the 'Doughnut economics' model (Raworth, 2017) as a useful framework to pursue the goal of meeting people's needs within environmental limits, and has developed a decision-making wheel based upon the model (Figure 1), which it is using to assess the impact of specific policy decisions or interventions[3]. At the same time, there is a need for a higher-level assessment of the current state of social and ecological conditions across Cornwall to inform progress towards agreed strategic priorities. This requires the identification of appropriate indicators of such conditions and measures of their trajectory, both of which involve significant data challenges.
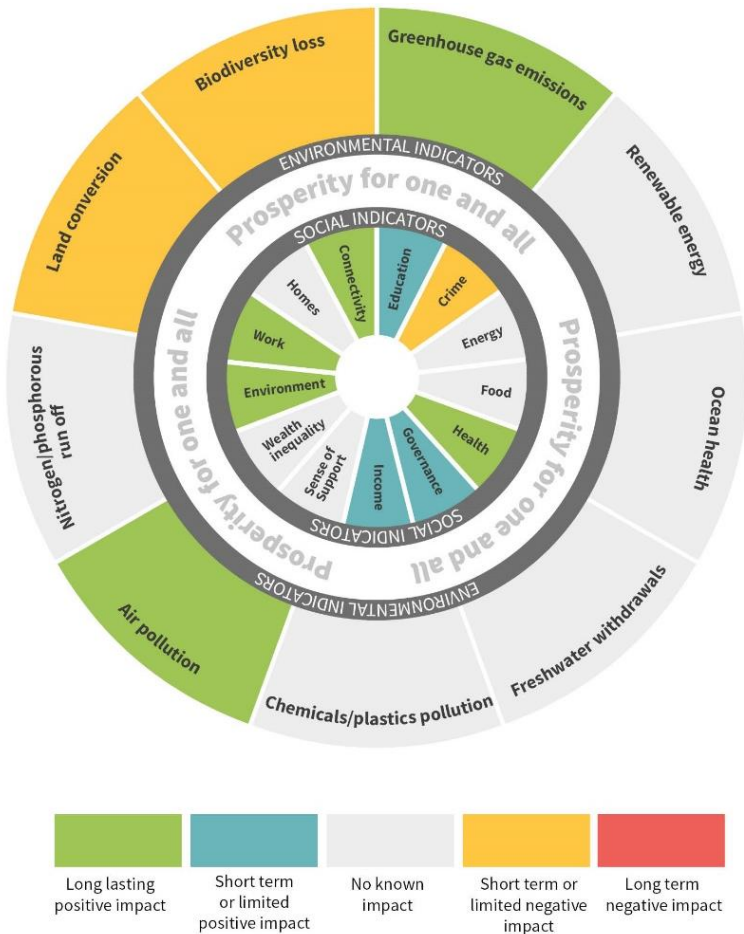
Figure 1: Example of Cornwall Council's decision-making wheel, as applied to the Saints Trail cycling and walking trail project (source: Cornwall Council, 2020).

This report presents an initial assessment of the 'state of the Doughnut' in Cornwall, providing a baseline from which to evaluate progress towards achieving a social foundation that meets human needs while also reducing environmental pressures. By developing a dataset that can be regularly revisited to assess progress this assessment has longer-term potential to inform reporting to the Cornwall and Isles of Scilly Leadership Board on ecological and social trends.

This report aims to assist Cornwall Council and other key stakeholders to identify appropriate indicators that can be used to track progress across the wider context in which the decision-making wheel is used. By assessing available data and identifying gaps, this 'state of the Doughnut' report is designed to provide acts a benchmark to help sustainable development in Cornwall. Where available, we also include data for the Isles of Scilly.

2 THE DOUGHNUT ECONOMICS MODEL

The Doughnut economics model incorporates a focus on social and planetary boundaries (Figure 2) and was devised by economist Kate Raworth (2012) as a compass for guiding human prosperity this century [4]. Raworth states that any vision of sustainable development must recognise "a social foundation of well-being that no one should fall below and an ecological ceiling of planetary pressure that we should not go beyond…between lies a safe and just space for all" [3]. This conceptual framework employs multiple indicators to provide an integrated assessment of socio-economic conditions and global environmental limits.
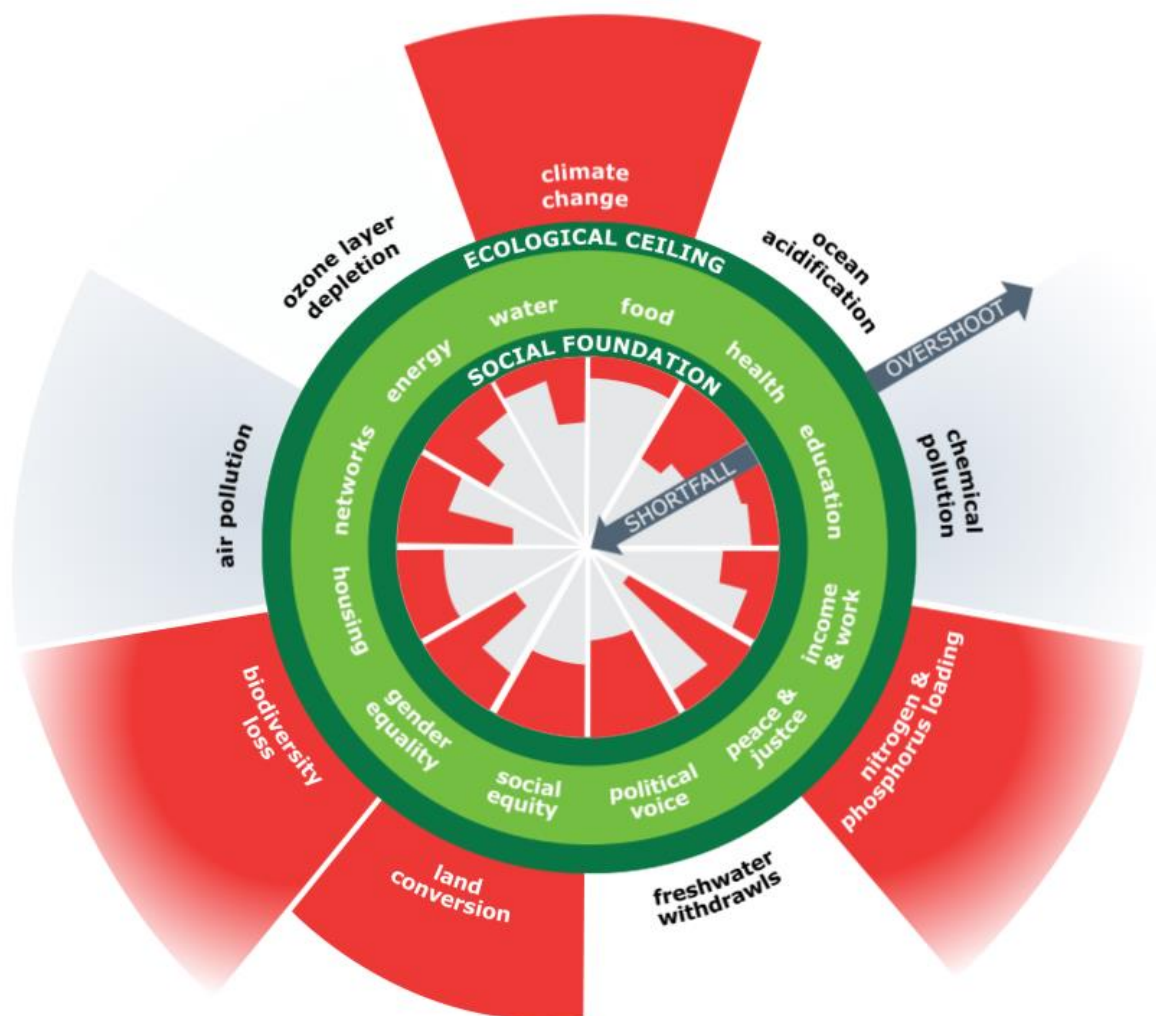
Figure 2: The Doughnut of social and planetary boundaries (Raworth, 2017; source: https://www.kateraworth.com/doughnut).

The social foundation – the inner ring – encompasses the twelve areas of life in which no person should be falling short. Deprivation in these areas demonstrates that inequalities exist, sometimes due to deep-rooted injustices. Targets to meet these basic rights and end deprivations are included in the 17 UN Sustainable Development Goals (SDGs) that aim to be achieved by 2030[5]. Shortfalls (Figure 2) indicate domains where the social foundation has not been reached for a given population.

The outer ring of the Doughnut is the ecological ceiling, consisting of the nine critical Earth processes identified by Rockström et al. (2009) as the 'planetary boundaries' within which humans can safely operate[6]. Living within these boundaries is essential if we are to maintain a habitable space for all life. Further research led by

Steffen et al. (2015) suggested that, if crossed, certain boundaries (e.g. climate change) could significantly influence other identified boundaries and tip the Earth system into a new and increasingly unstable state [7]. Situated between these two rings lies the Doughnut itself, an "illustrative depiction of a safe and just space for humanity" in which we may all thrive [4]. It is by occupying this space of 'dynamic balance' that we can hope to achieve sustainable development [3].

Though Raworth's Doughnut model aimed to quantify the social foundation and ecological ceiling at a global scale, it acts as a blueprint for interpretation at multiple levels and has been applied to nations (*The UK Doughnut* report) and cities (*The Amsterdam City Doughnut*)[8,9]. When applying the Doughnut model at different scales, three components and associated questions must be considered:

- **Domains:** how can the domains be meaningfully interpreted and defined at the relevant spatial scale?

- **Indicators:** what are the available datasets that best represent each domain, and which ones can be monitored to assess status and trends?

- **Reference points:** what are the goals or targets for each social and ecological domain, or the proposed boundaries or thresholds that should not be exceeded?

3   THE STATE OF THE DOUGHNUT IN CORNWALL

3.1   DEFINING THE DOMAINS

Raworth's model aimed to quantify the social foundation and ecological ceiling at a global scale. The *UK Doughnut* report (2015) subsequently applied the concept at a national scale and considered the relevance and interpretation of the domains for the UK. Indicators were selected based on the availability and suitability of datasets to assess the domains. Cornwall Council's Decision-Making Wheel extends this process of scale translation to consider what is important to each domain in relation to any one project. In preparing this report we have considered the domains and indicators used in all these applications. Our aim was to retain the original meaning of the Raworth domains in capturing aspects of the social foundation and environmental ceiling, and to identify appropriate indicators to monitor relevant outcomes in Cornwall and the Isles of Scilly.

This 'state of the Doughnut' report has a different purpose to Cornwall's Decision-Making Wheel; the former aims to provide an overview of the situation at the scale of the county (and where possible, incorporate the Isles of Scilly) whereas the latter is designed to aid project decision making on a case-by-case basis. As a result, there are some differences in the domains and indicators used in this report. We have selected indicators that reflect *outcomes* rather than *processes*. The evolution of domains across the models is shown in Table 1.

Table 1: The domains featured in different applications of the Doughnut model. Source: (Raworth, 2017; Sayers and Trebeck, 2015; Cornwall Council, 2019).

	DOUGHNUT ECONOMICS	THE UK DOUGHNUT	CORNWALL DECISION-MAKING WHEEL	CORNWALL DOUGHNUT
SOCIAL FOUNDATION	Education	Education	Education	Education
	Energy	Energy	Fuel poverty	Fuel Poverty
	Food security	Food	Food	Food
	Gender equality			Equality
	Health	Health	Health	Health
	Housing	Housing	Homes	Housing
	Income and work	Income	Wealth	Income
		Work		Work
	Networks	Sense of support	Community and culture	Social Networks
	Peace and justice	Crime	Crime	Safety
	Political voice	Governance	Governance	Political voice
	Social equity			
	Water			
		Connectivity	Connectivity	Connectivity
		Local environment	Local environment	
ENVIRONMENTAL CEILING	Air pollution	Air quality	Air quality	Air pollution
	Biodiversity loss	Biodiversity loss	Biodiversity	Biodiversity
	Chemical pollution	Chemical pollution	Pollution	Chemical pollution
	Climate change	Climate change	Greenhouse gas emissions	Climate change
			Climate change adaptation	
	Freshwater withdrawals	Global fresh water	Water resources	Water Resources
	Land conversion	Land-use change	Land use	Land use change
	Nitrogen and phosphorous loading	Nitrogen cycle	Soil and waterway health	Soil and waterway health
		Phosphorous cycle		
	Ocean acidification	Ocean health	Ocean health	Ocean health
	Ozone-layer depletion	Ozone depletion		
			Materials economy	Waste
			Renewable energy	

Significant changes made in relation to the social foundation include the following domains:

- **Gender equality** which was included in the original Raworth model but not in *The UK Doughnut* report or Cornwall's Decision-Making Wheel. This reflects the complexity of considering gender as it impacts on all aspects of social life. However, because disaggregated data are unavailable for many of the indicators considered here, we have retained a domain for **equality** but have included data on gender and ethnicity.

- **Income and work** were differentiated in *The UK Doughnut* report, recognising that work reflects more than remuneration and that there is a relationship between satisfying, meaningful work and people's mental health as well as their ability to engage in non-work activities in the community and with family. We have adopted this approach for the 'state of the Doughnut' and have not used the broader focus on wealth as used in Cornwall's Decision-Making Wheel.

- A measure called '**social equity**' was used in the original Raworth model to include income distribution. This domain was not replicated in *The UK Doughnut* report or Cornwall's Decision-Making Wheel. We have excluded it from the social foundation assessment here although our reinstatement of gender equality and a focus on ethnicity (see above) aims to incorporate aspects of inequality.

- **Local environment** was included in the UK model to reflect people's access to the natural environment, recognising the wellbeing benefits that are derived from this. While the Decision-Making Wheel retains this domain, we have excluded it here, in part because of challenges identifying meaningful data at an appropriate scale. However, we acknowledge that access to the environment contributes to the outcomes included under the 'health' domain.

Changes to the environmental domains include:

- '**Climate change adaptation**' and '**renewable energy**' which are both introduced in the Decision-Making Wheel but were not in either of the previous iterations of this approach, nor do we include them here. While measures of adaptation and progress towards increased use of renewable energy are important in assessing the impact of specific policy decisions and to identify processes being put in place to mitigate the risks of climate change, they do not reflect the overall state of climate change in the region and are considered *process* rather than *outcome* indicators. Progress on renewable energy in Cornwall is already being monitored as part of Cornwall Council's Climate Change Plan (2019).

- '**Ozone depletion**' was omitted since it is a global scale issue and cannot easily be measured or tackled at a local scale. It is more appropriate for the Raworth model with its focus on global systems and processes.

- '**Waste**' is included as an additional domain (linked to the Decision-Making Wheel's focus on 'materials economy') since waste production represents a pressure exerted on the environment by the production and consumption of materials in Cornwall.

3.2 IDENTIFYING APPROPRIATE INDICATORS

Indicators for each domain are proposed based on the best available data to reflect each domain. The selection of indicators was guided by several principles (Box 1).

BOX 1: INDICATOR SELECTION PRINCIPLES

Where possible, data informing the 'state of the Doughnut' in Cornwall should meet the following criteria:

- **MEANING:** data reflect the intent of each domain as closely as possible

- **OUTCOME-ORIENTED**: data reflect outcomes, rather than processes

- **SCALE:** data should be available for Cornwall

- **CONTINUITY:** data should be available from annually updated datasets

- **CONFIDENCE:** datasets should have a consistent methodology, be accessible from reliable sources, and be based on sufficient sample sizes

- **COMPARABILITY:** indicators should align with *The UK Doughnut* data or other national datasets to allow wider comparison

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Indicator selection was discussed with relevant experts within the county to inform the selection, particularly in cases where several datasets were available. Many of the domains include data from more than source and we have used the most up-to-date information available. In some cases, there was insufficient data to provide a measure of the current situation in Cornwall and we have made suggestions for appropriate indicators that could be developed and used in future.

Where applicable and available, existing national or regional targets have been identified and included for reference. These have been sourced from current legislation, policy papers and published strategies that indicate agreed goals and targets to which people are already working towards.

A full list of the datasets used and their sources can be found in Table 32 (Appendices). In many cases the data available do not directly measure the desired outcome, and the most appropriate data available have been selected for inclusion here. For example in the case of waste, the desired outcome is to reduce overall household and commercial consumption, and see a reduction in overall waste. However, because consumption data and annual total waste data were unavailable, we have instead proposed data on household waste disposal and recycling rates. A record of the datasets that we identified but did not considered appropriate when assessed against the principles is included in Table 33 (Appendices).

The social domains, relevant indicators and their current status based on most recent data available are summarised in Figure 3.

Connectivity: so everyone can access opportunities to live, work and play

Draft Indicator	Supports the SDGs	Status
Internet access		7% of people in Cornwall and the Isles of Scilly aged ≥ 16 have never used the internet (2019)
Ease of access to essential services		66% of residents can easily travel to access essential services within Cornwall (2019)

Education: so everyone can fulfil their potential

Draft Indicator	Supports the SDGs	Status
Attainment among disadvantaged pupils		19.6% of disadvantaged young people in Cornwall achieved a "strong" 9-5 GCSE pass in Maths and English (2019/2020)
GCSE attainment gap		25.3% 'gap' in GCSE attainment between disadvantaged and non-disadvantaged young people in Cornwall (2019/2020)

Housing: so everyone has a decent, secure and affordable home

Draft Indicator	Supports the SDGs	Status
Housing security		11.46 homelessness assessments in Cornwall per 1,000 households (2020)
Rough sleeping		24 people are sleeping rough in Cornwall (2019)

Safety: so everyone can live safely together

Draft Indicator	Supports the SDGs	Status
Violent crime		8.4 incidents of 'violence with injury' crime recorded per 1,000 population in Cornwall (2019)
Perceived safety		43% of residents in Cornwall agree that the Council and police are dealing with anti-social behaviour and crime issues in their local area (2019)

Work: so no-one is unwillingly out of work

Draft Indicator	Supports the SDGs	Status
People unwillingly out of work		8.5% of working age people (16-64) are unwillingly out of work (2019)

Fuel poverty: so no-one has to choose between heating and eating

Draft Indicator	Supports the SDGs	Status
Fuel poverty		12.6% of households in Cornwall are in fuel poverty (2018)

Equality: so everyone can thrive in a diverse, inclusive and anti-racist Cornwall

Draft Indicator	Supports the SDGs	Status
Gender pay gap		Mean gender pay gap among employees in Cornwall and the Isles of Scilly is -0.1% for full-time and 3.2% for part-time (2019)
Use of stop and search powers		18.4 'stop and search' incidences for every 1,000 black residents compared with 1.6 for every 1,000 white residents in Cornwall (2019/20)

Food: so no-one goes hungry

Draft Indicator	Supports the SDGs	Status
Food bank usage		16,752 3-day food parcels were given by the Trussell Trust in Cornwall (2018/19)

Social networks: so everyone has a sense of belonging and support

Draft Indicator	Supports the SDGs	Status
Sense of community		69% of residents in Cornwall agree that people in the local area pull together to improve the local area (2019)
Sense of isolation		7% of GP Patients in Cornwall have experienced feelings of isolation in the past 12 months (2020)

Health: so everyone can live longer in good health

Draft Indicator	Supports the SDGs	Status
Healthy life expectancy at birth		62.3 years for females and 62.5 years for males in Cornwall (2018)
Health-related economic inactivity		52.9% of economically inactive people aged 16-64 in Cornwall are inactive due to health conditions or illness lasting more than 12 months (2020)

Income: so no-one lives in poverty

Draft Indicator	Supports the SDGs	Status
Employee jobs with an hourly pay below the Real Living Wage (RLW)		26.8% of employee jobs in Cornwall have an hourly pay below the RLW (2019)

Political voice: so everyone has a say over decisions that affect them

Draft Indicator	Supports the SDGs	Status
Voter turnout		Voter turnout for the General Election was 73.3% in Cornwall (2017)
Civic influence		28% of people in the South West agree that they can influence decisions affecting their local area (2019)

Figure 3. Summary of the social foundation for Cornwall, detailing social domains, relevant indicators, related UN Sustainable Development Goals, and current status.

The environmental domains, relevant indicators and their current status based on most recent data available are summarised in Figure 4.

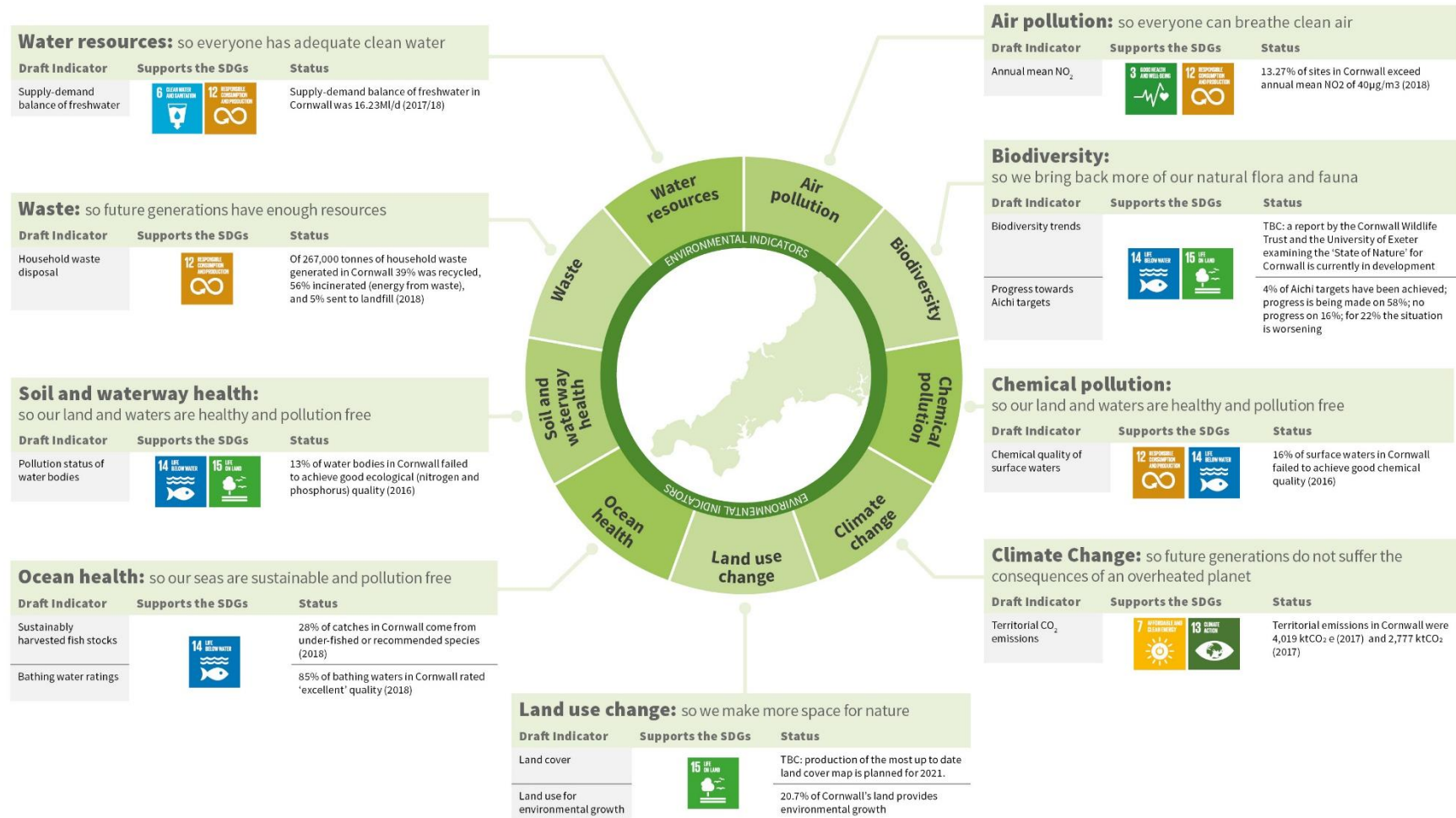**Water resources:** so everyone has adequate clean water

Draft Indicator	Supports the SDGs	Status
Supply-demand balance of freshwater	6 CLEAN WATER AND SANITATION / 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Supply-demand balance of freshwater in Cornwall was 16.23Ml/d (2017/18)

Waste: so future generations have enough resources

Draft Indicator	Supports the SDGs	Status
Household waste disposal	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Of 267,000 tonnes of household waste generated in Cornwall 39% was recycled, 56% incinerated (energy from waste), and 5% sent to landfill (2018)

Soil and waterway health: so our land and waters are healthy and pollution free

Draft Indicator	Supports the SDGs	Status
Pollution status of water bodies	14 LIFE BELOW WATER / 15 LIFE ON LAND	13% of water bodies in Cornwall failed to achieve good ecological (nitrogen and phosphorus) quality (2016)

Ocean health: so our seas are sustainable and pollution free

Draft Indicator	Supports the SDGs	Status
Sustainably harvested fish stocks	14 LIFE BELOW WATER	28% of catches in Cornwall come from under-fished or recommended species (2018)
Bathing water ratings		85% of bathing waters in Cornwall rated 'excellent' quality (2018)

Air pollution: so everyone can breathe clean air

Draft Indicator	Supports the SDGs	Status
Annual mean NO_2	3 GOOD HEALTH AND WELL-BEING / 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13.27% of sites in Cornwall exceed annual mean NO2 of 40µg/m3 (2018)

Biodiversity: so we bring back more of our natural flora and fauna

Draft Indicator	Supports the SDGs	Status
Biodiversity trends	14 LIFE BELOW WATER / 15 LIFE ON LAND	TBC: a report by the Cornwall Wildlife Trust and the University of Exeter examining the 'State of Nature' for Cornwall is currently in development
Progress towards Aichi targets		4% of Aichi targets have been achieved; progress is being made on 58%; no progress on 16%; for 22% the situation is worsening

Chemical pollution: so our land and waters are healthy and pollution free

Draft Indicator	Supports the SDGs	Status
Chemical quality of surface waters	12 RESPONSIBLE CONSUMPTION AND PRODUCTION / 14 LIFE BELOW WATER	16% of surface waters in Cornwall failed to achieve good chemical quality (2016)

Climate Change: so future generations do not suffer the consequences of an overheated planet

Draft Indicator	Supports the SDGs	Status
Territorial CO_2 emissions	7 AFFORDABLE AND CLEAN ENERGY / 13 CLIMATE ACTION	Territorial emissions in Cornwall were 4,019 ktCO2 e (2017) and 2,777 ktCO2 (2017)

Land use change: so we make more space for nature

Draft Indicator	Supports the SDGs	Status
Land cover	15 LIFE ON LAND	TBC: production of the most up to date land cover map is planned for 2021.
Land use for environmental growth		20.7% of Cornwall's land provides environmental growth

Figure 4. Summary of the environmental ceiling for Cornwall, detailing social domains, relevant indicators, related UN Sustainable Development Goals, and current status.

6   SOCIAL FOUNDATION: DOMAIN SUMMARIES

This section provides the rationale behind the interpretation of each domain and the indicators proposed, identifies existing relevant policy targets, explains the current status, and highlights data gaps or recommendations for Cornwall's social foundation.

6.1   CONNECTIVITY

Connectivity was not part of Raworth's original economic Doughnut model. However, it has since been included in *The UK Doughnut* report, Amsterdam's city snapshot report, and Cornwall Council's Decision-Making Wheel, measuring both technological and transport connectivity.

The UK Doughnut report highlighted how internet access is related to numerous domains that make up the social foundation, with it being an enabler to "educational achievement, job prospects, contact with friends and family and democratic and civic participation, along with access to public can private goods and services, advice, information and knowledge" [8]. Access to affordable transport links affect the mobility of communities. Affordable and accessible transport options can open opportunities for trade in rural towns and provide a vital link for people to access services (such as healthcare) and work opportunities.

INDICATORS

6.1.1   INTERNET ACCESS

Inequalities in online connectivity have been exposed during the COVID-19 lockdown; for example, school closures led to disparities in students able to continue learning. The 'digital divide' will become further pronounced as technology progresses and factors such as working from home become more commonplace; the widening gap between those who have access to this technology and those who do not will lead to greater inequalities in access to opportunities, knowledge, services, and goods [10].

In 2019 the government released a report - *Exploring the UK's Digital Divide* - which used ONS data to highlight five key benefits of digital inclusion: increased earnings through enhanced digital skills; employability due to access to job sites; reduced costs of retail transactions; communication with friends and family, and significant time saving through access to online government services and banking [10]. Internet connectivity helps address digital exclusion barriers by providing accessibility to digital technology [11]. Other identified barriers are digital literacy and skill, affordability, motivation, and trust and confidence.

The *Digital Inclusion Strategy* produced by Cornwall and the Isles of Scilly Leadership Board highlights that although Cornwall and the Isles of Scilly have significantly benefited from the EU-funded rollout of superfast broadband (download speeds of at least 30 Mbit/s), digital inclusion needs to be reinforced through greater accessibility, affordability, and digital literacy. The Strategy extends to residents and organisations throughout Cornwall and the Isles of Scilly and aims to address the barriers that prevent digital inclusion; internet access in Cornwall is therefore a key indicator for the region's digital connectivity.

EXISTING TARGETS

The ambition of the Digital Inclusion Strategy is to reduce by 25% over the duration of the strategy (2019-2023) the number of residents in Cornwall and the Isles of Scilly who have never used the internet, from a baseline of 13.6% (72,0000) in 2018.

STATUS AND RECOMMENDATIONS

7% OF PEOPLE IN CORNWALL AND THE ISLES OF SCILLY AGED 16 AND OVER HAVE NEVER USED THE INTERNET (2019) [12]
SOURCE: ONS

The number of people aged 16 and over who have never used the internet has decreased since 2013, when the figure was 15%. This decline in the number of non-internet users is like that for England, where the percentage has declined from 14% in 2013 to 8% in 2019. While this progress meets the target outlined in the Digital Inclusion Strategy, it will be important to monitor this long term because the estimated number of people in Cornwall and the Isles of Scilly who have never used the internet has fluctuated over the last 5 years between 32,000-76,000, rather than demonstrating a steady decline.

These data do not provide insight as to why people do not use the internet, and access may be one of several reasons. The Universal Service Obligation (USO) has been introduced by the UK government to act as a 'safety net' for households that are remote or vulnerable due to low income or disability. The USO permits households to make a legal request for a broadband connection of 10 Mbit/s [13].

Internet usage data do not capture all aspects of digital inclusion including, for example, digital literacy. Data on confidence in using the internet would be a useful additional metric to address this.

6.1.2   EASE OF ACCESS TO ESSENTIAL SERVICES

To identify the number of people who feel they can easily access essential services within the region we used responses from the annual National Highways and Transport Network (NHT) *Public Satisfaction Survey,* which asked: "how easy or difficult do you find travelling to the following places (by any form of transport)?", the "following places" comprised hospitals, banks, post office, shops, doctors and health facilities, school/college, place of work, and leisure facilities [14]. NHT produce an accessibility index based on responses to these eight questions.

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

66% OF RESIDENTS CAN EASILY TRAVEL TO ACCESS ESSENTIAL SERVICES WITHIN CORNWALL (2019) [14]
SOURCE: NATIONAL HIGHWAYS AND TRANSPORT NETWORK

The percentage of residents who find they can easily travel to access essential services within Cornwall is lower than the NHT Average of 70% [14]. The NHT Average is calculated from the responses collated by those UK authorities that took part in the survey; over 100 authorities participated in 2019. In relation to Cornwall, seven of the eight indicators fall below the NHT average, with only the ease of travel to place of work being above average. The place that residents found to be the most difficult to reach in Cornwall was the hospital, with only 58% finding it easy to travel to, compared with the NHT Average of 66% [14].

The questionnaire for the 2020 survey has been sent to at least 3,300 residents in Cornwall, with the results expected to be published in October 2020.

The Council of the Isles of Scilly did not take part in the 2019 survey, but comparable data for the Isles of Scilly would be valuable in future to reflect the differences in transport links and access to services for these more geographically remote communities. Data on perceptions of the affordability of public transport services in the region would also be useful for assessing this domain.

See page 46 for notes on data and methodologies.

6.2 SAFETY

Raworth's model included the domain 'peace and justice', which included indicators of corruption and violent crime. *The UK Doughnut* report reinterpreted this component for national scale decision-making, concluding that feelings of personal safety are an important concern for the social foundation. After consulting with the Office for the Police and Crime Commissioner for Devon, Cornwall and IOS, we suggest that the most suitable indicators to reflect perceived levels of safety in Cornwall are: the number of recorded cases of 'violence with injury'; and residents' views on the extent to which the Council and the police are dealing with anti-social behaviour and crime issues in their local area.

INDICATORS

6.2.1 'VIOLENCE WITH INJURY' RECORDED CRIME

Violent crime grouped as either 'with' or 'without injury' is recorded in annually produced ONS data tables showing Recorded Crime by Community Safety Partnership Areas and Police Force Areas [15]. 'Violence with injury' covers a broad range of offences that have resulted in incidents of wounding and assault with injury, including 'Domestic Abuse, Night-time Economy and Other' (including alcohol-related crime) [15]. These incidents affect a far greater proportion of the general population than crimes that fall under other categories, for example 'serious violent crime' (i.e. murder, gang-related violence) and are therefore more likely to impact a person's perceived level of safety in their local community. The violence with injury rate provides a measure of actual experience of crime (within the limitations of reporting variance and victim confidence).

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

IN CORNWALL, 8.4 RECORDED INCIDENTS OF 'VIOLENCE WITH INJURY' CRIME OCCUR PER 1,000 POPULATION (2019) [16]
SOURCE: ONS

The number of incidents of 'violence with injury' recorded crime in Cornwall is slightly above similar areas in England and Wales (average 7.9 per 1,000 pop.) and lower than the average for England (9.1 per 1,000 pop.). Each force has a unique group to which it is 'most similar', called the 'Most Similar Family' (MSF) Group. Cornwall's MSF group provides the best benchmark against which to compare crime rates in Cornwall as they comprise similar areas in England and Wales.

6.2.2 PERCEIVED LEVEL OF SAFETY

To identify residents' perceptions of personal safety we used responses from the Cornwall *Residents' Survey Report*, a bi-annual survey which asks: "To what extent do you agree or disagree that the Council and the police are dealing with anti-social behaviour and crime issues that matter in your local area?" [17]. This measure reflects how confident residents are that the Council and police force are tackling crime effectively and therefore provides a proxy for perceived safety.

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

43% OF RESIDENTS IN CORNWALL AGREE THAT THE COUNCIL AND POLICE ARE DEALING WITH ANTI-SOCIAL BEHAVIOUR AND CRIME ISSUES IN THEIR LOCAL AREA (2019) [17]
SOURCE: CORNWALL COUNCIL

The *Residents' Survey Report* provided data collected in both July and November of 2019, and there was little difference in response levels for this question (41% in July and 43% in November). In the latest survey, 30% responded that they disagreed, with 21% stating 'neither' and 6% saying 'don't know'. A UK-wide survey in 2012 reported that 55% of callers reporting anti-social behaviour were satisfied with how anti-social behaviour is dealt with by the police in their local area [18].

See page 46 for notes on data and methodologies.

6.3   EDUCATION

Raworth's model identifies 'education' as fundamental to achieving targets of other domains in the social foundation. It is therefore important to reflect not just overall attainment, but also the impact that a person's access to education can have on their long-term life chances. *The UK Doughnut* looked for indicators that reflected the quality and achievement of educational qualification and reported on the number of working adults (aged 16 and over) with no formal qualifications. We have chosen to use GCSE attainment as the metric for both indicators, since most pupils in England sit these examinations at the end of compulsory education. Though not compulsory, GCSEs are regarded as a critical milestone in determining a young persons' access to further education and employment.

INDICATORS

6.3.1   GCSE ATTAINMENT

One of Cornwall Council's education priorities is to "secure high quality provision, widen local opportunities and promote equalities", and an increase in the percentage of disadvantaged young people achieving a 'strong' GCSE pass in Maths and English is a key measure, the results of which correlate with closing the attainment gap (indicator 6.3.2) [19].

EXISTING TARGETS

In its *Annual Performance Report,* Cornwall Council had a year-end target (2019/20) for 21.5% of disadvantaged young people in Cornwall to achieve a 'strong' GCSE pass (grades 9-5) in Maths and English [20].

STATUS AND RECOMMENDATIONS

19.6% OF DISADVANTAGED YOUNG PEOPLE IN CORNWALL ACHIEVED A 'STRONG' 9-5 GCSE PASS IN MATHS AND ENGLISH (2019/2020) [20]
SOURCE: CORNWALL COUNCIL

Though the year-end target for 2019/20 was not met, GCSE attainment by disadvantaged pupils showed an improvement upon the previous year's figure (18.2%) [20]. However, in England, 24.7% of the disadvantaged cohort got a strong pass in 2019, indicating that Cornwall is some way behind national trends [21].

6.3.2   GAP IN ATTAINMENT BETWEEN DISADVANTAGED AND NON-DISADVANTAGED YOUNG PEOPLE

Reducing the attainment gap between disadvantaged and non-disadvantaged young people at GCSE level is something Cornwall Council is committed to achieving as part of their strategic vision for 2030, and it is one of the indicators for the 'Education' domain in their Decision-Making Wheel. Reducing the attainment gap will be critical in improving equal access to education for all. Pupils are defined as disadvantaged by the Department for Education if they are known to have been eligible for free school meals in the past six years, if they are recorded as having been looked after for at least one day, or if they are recorded as having been adopted from care [21].

EXISTING TARGETS

The year-end target (2019/20) in the *Annual Performance* Report was to close the disadvantage gap in attainment between disadvantaged and non-disadvantaged young people [21].

STATUS AND RECOMMENDATIONS

THERE IS A 25.3% GAP IN GCSE ATTAINMENT BETWEEN DISADVANTAGED AND NON-DISADVANTAGED YOUNG PEOPLE IN CORNWALL (2019/2020) [21]
SOURCE: CORNWALL COUNCIL

The attainment gap in Cornwall has declined by 1.3%, from 26.6% in the previous year (2018/2019) [21]. Addressing disruption to learning during the coronavirus lockdown, particularly among vulnerable and disadvantaged pupils, will be key to maintaining progress in reducing the attainment gap in the coming year.

See page 46 for notes on data and methodologies.

6.4   EQUALITY

Central to Raworth's Doughnut model is the notion of a "safe and just space for humanity", requiring a commitment to tackling systemic discrimination against minorities within society [4]. Protected characteristics identified in the UK Equality Act (2010) are: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation [22]. Local government has a responsibility to work with their communities to eradicate discrimination and encourage equal opportunities, thereby helping to build a diverse and engaged workforce [23].

The UK Doughnut **report and Decision-Making Wheel included equality as a crosscutting issue rather than a separate domain. While it is important to acknowledge the intersections of inequalities with other aspects of the social foundation, in assessing the 'state of the Doughnut' in Cornwall, equality was retained as a separate domain because of its importance and the fact that disaggregated data were not available for most of the domains, indicators and associated datasets.**

For this domain we are limited by the availability of data and unable to capture the state of play for all protected characteristics. However, we were able to identify useful data on gender equality (using data on the gender pay gap), and inequality among ethnic groups (using data indicating the rate of police stop and search incidents by ethnicity).

INDICATORS

6.4.1   AVERAGE % GENDER PAY GAP FOR FULL-TIME AND PART-TIME EMPLOYEES

Since April 2017, it has been mandatory in the UK for employers with 250 or more employees to publish and report on their gender pay gap. A measure of labour market or workplace disadvantage, the gender pay gap compares men's and women's average hourly pay and the results are either expressed as a positive measure (the average of how much less women earn per hour compared to their male counterpart) or a negative measure (the average of how much more women earn per hour than their male counterparts).

EXISTING TARGETS

Not yet defined. As detailed in the *Equality Objectives and Action Plan 2018-2022,* Cornwall Council has an objective to reduce the gender pay gap within its own operations but there are no regional or national targets set [24].

STATUS AND RECOMMENDATIONS

MEAN GENDER PAY GAP IN CORNWALL AND THE ISLES OF SCILLY IS -0.1% FOR FULL-TIME AND 3.2% FOR PART-TIME EMPLOYEES (2019) [25]
SOURCE: ONS

The mean gender pay gap for employees in Cornwall and the Isles of Scilly is significantly lower than that of England, where the gap for full-time employees is 13.8%, and part-time is 6.5% [25]. The long-term dataset shows how the average gap in Cornwall and the Isles of Scilly has reduced from 33.5% in 1997, which follows the declining trend for England (18.8% in 2019, down from 20.8% in 1997). The data for Cornwall and the Isles of Scilly are combined in this indicator.

6.4.2 ETHNICITY AND STOP AND SEARCH

Stop and search data have been prominent in recent public debate about institutional racism and unlawful racial discrimination. Recent reports highlight that some police forces disproportionately target their powers in relation to certain groups in a way that is discriminatory [26]. Such racial disparities can erode public trust in institutions such as the police, and lead to people feeling victimised [27]. Data for stop and search activity for Cornwall were obtained from Devon & Cornwall Police, reporting the number of stop and search cases by ethnic group.

No target identified.

STATUS AND RECOMMENDATIONS

CASES WHERE THE POLICE USE 'STOP AND SEARCH' POWERS IN CORNWALL REPRESENT 18.4 INCIDENTS FOR EVERY 1,000 BLACK RESIDENTS COMPARED TO 1.6 FOR EVERY 1,000 WHITE RESIDENTS IN 2019-20 [28]
SOURCE: DEVON & CORNWALL POLICE

In 2019-2020 there were 15 stop and search incidences involving black individuals, representing 0.01% of the total 1,173 stop and search incidences in Cornwall. Though the most recent data available on population by ethnicity are from the 2011 census data, the proportion of black, Asian and ethnic minority (BAME) residents from 2011 has been applied to 2019 population estimates to assess rates of use of 'stop and search' powers. The data indicate approximately 18.4 incidents for every 1,000 black residents (3.5 incidents for every 1,000 BAME residents), compared to 1.6 incidents for every 1,000 white residents. 2019 data for England and Wales show similar patterns, with stop and search of BAME individuals to be significantly higher than that of white people: there were 4 stop and searches for every 1,000 white people, compared with 38 for every 1,000 black people, and 11 for every 1,000 Asian people [29].

These data represent only one possible indicator of racial disparities in Cornwall. However, few other publicly available data for Cornwall and the Isles of Scilly are disaggregated by ethnic group. Monitoring inequalities in future may require additional data collection around priority areas, and further exploration of the interactions of these inequalities with other domains.

See page 46 for notes on data and methodologies.

6.5 FOOD

Food security was a key component of Raworth's model, with access to food being important for meeting targets in other social foundation domains, such as health. The Doughnut economics model assessed the percentage of the global population that is undernourished, using data from the United Nations Food and Agriculture Organisation (FAO). *The UK Doughnut* **report used data that showed the percentage of people (adults and children) who could not afford to feed themselves 'properly', as defined by standards identified in** *The Impoverishment of the UK* **report (2013)** [30]**.**

This report follows *The UK* **Doughnut report in interpreting food insecurity as reflecting inadequate access to sufficient safe and nutritionally adequate food** [31]**. The Trussell Trust's report,** *State of Hunger,* **reports that around 8-10% of UK households have experienced food insecurity in recent years** [32]**. One response has been the establishment of food banks, venues from which a free food parcel can be obtained; the Trussell Trust network supplies a 3-day parcel in exchange for vouchers given to individuals by referral agencies (for example, welfare services, GPs or homeless day centres)** [32]**.**

INDICATOR

FOOD BANK USAGE

We measure food insecurity using the number of 3-day food parcels issued by Trussell Trust food banks in Cornwall. Food bank use is usually the result of, or made more likely by, vulnerabilities such as loss of earnings or sudden financial insecurity, changes in family circumstances, homelessness, and problems with benefits [33]. The use of food banks can reflect wider destitution, which links to many of the other social foundation domains.

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

16,752 3-DAY FOOD PARCELS WERE DISTRIBUTED BY THE TRUSSELL TRUST IN CORNWALL (2018/19) [34]
SOURCE: THE TRUSSELL TRUST

The Trussell Trust support a network of over 1,200 food bank centres in the UK, supplying three-day's worth of emergency food supplies to people in a crisis. The number of 3-day food parcels given to people in Cornwall between 1 April 2018 and 31 March 2020 represents an 8% increase from 2017/18 (15,392). Data for England shows a greater increase in distribution of these parcels by the Trust, with an 18% increase from 2017/18 to 1,235,892 in 2018/19.

The Trussell Trust operates 25 food banks across Devon, Cornwall, and Somerset, and is responsible for running approximately half of the food banks in Cornwall. Other independently-run foodbanks operate in Cornwall but currently usage statistics are not available. Coordinated monitoring of food bank usage in Cornwall and the Isles of Scilly would be helpful to assess trends and geographic differences in food insecurity. Monitoring food bank usage for 2020 is particularly important for assessing the socio-economic impacts of COVID-19, as it is a critical indicator of economic insecurity. The Trussell Trust reported supplying 1,483,243 3-day parcels to people in England between 1 April 2019 and 31 March 2020, with low income being the main reason (39%) for people being referred to the scheme [35].

Data on access to food should also be complemented by data on food quality to fully understand whether diets are safe and nutritionally adequate. Data are available to indicate the percentage of adults meeting the recommended '5-a-day' on a 'usual day' in Cornwall (see

Table 33; Appendices), but do not indicate whether affordability or access are the reasons for not meeting this recommended guidance. The national biennial *Food and You Survey* also collects data on perceptions of food security, using multiple indicators to create an index, finding in 2018 that 10% of households surveyed had low food security [36]. These data are not available for Cornwall and Isles of Scilly but survey questions could be replicated at a local level to collect comparable data.

See page 46 for notes on data and methodologies.

6.6 FUEL POVERTY

In Raworth's and *The UK Doughnut* models, this domain was defined as 'energy', though they employed very different indicators. Raworth's report presented the global population lacking access to electricity and clean cooking facilities, whilst *The UK Doughnut* employed household fuel poverty as its measure.

Cold weather disproportionately affects vulnerable members of the community, those who are over 60, on a low income, living with long-term mental health conditions, disabled, caring for someone, and those with children under the age of 16. Fuel poverty can be caused by inadequate heating, low incomes, and the continuing high cost of energy, and can result in health problems, such as respiratory and circulatory conditions, and families facing the dire choice between heating and eating [37]. The UK Government regards a household as fuel poor if its fuel costs are above average (the national median level), and if by paying those costs it would leave its remaining income below the poverty line [38].

INDICATOR

FUEL POVERTY

This UK Government measure differs slightly from that used in Cornwall Council's Decision-Making Wheel, and *The UK Doughnut* report, where fuel poverty is defined as a household spending 10% or more of its income on energy costs (*The UK Doughnut*) or all fuel (Cornwall Council). The indicator in this report uses the UK Government's definition of fuel poverty and its associated dataset.

EXISTING TARGETS

In the *Wellbeing and Public Health: Service 2018-2022* report, Cornwall Council state that they aim to reduce fuel poverty to 5% of households (12,647 in 2018) by 2030 [39].

STATUS AND RECOMMENDATIONS

12.6% OF HOUSEHOLDS IN CORNWALL ARE IN FUEL POVERTY (2018) [40]
SOURCE: DBEIS

The proportion of households in Cornwall in fuel poverty has decreased from 19.1% in 2010, though this remains higher than for England (11.4% in 2010; 10.3% in 2018) [41]. National and sub-regional data on fuel poverty are published annually and there is a long-term dataset against which to map trends. Cornwall Council has partnered with 30 stakeholders to address fuel poverty, known as the 'Winter Wellness Partnership', helping to deliver improvements to homes across Cornwall and the Isles of Scilly, which will assist in reducing the number of households in fuel poverty [42].

See page 46 for notes on data and methodologies.

6.7   HEALTH

Good mental and physical health is fundamental to living a positive, decent, and active life. The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity", the enjoyment of the highest standard of which is a fundamental human right [43]. In Raworth's model, 'health' did not distinguish between mental and physical health; she used the under-5 mortality rate and life expectancy below 70 years as indicators of health. *The UK Doughnut* reported on physical and mental health separately, with years of healthy life expectancy providing an indication of physical health, and self-reported anxiety levels reflecting mental health.

Rather than selecting indicators that measure specific physical and mental health outcomes, we propose using two broad indicators: healthy life expectancy at birth, and economic inactivity due to long-term sickness. These recognise the interlinked nature of physical and mental health, as well as reflecting the impact of health on people's ability to live a full and active life.

INDICATORS

6.7.1   HEALTHY LIFE EXPECTANCY AT BIRTH

Healthy Life Expectancy (HLE) accounts for illness and mortality, whilst providing an indication of quality and duration of life, measured in life years from a particular age, typically birth. It provides an estimate of how long a person is expected to live by combining statistical predictions of life expectancy with self-reported health status (how individuals perceive their general health) [8].

EXISTING TARGETS

As part of the Grand Challenge mission to meet the needs of an ageing society, the UK Government aims to ensure that people can enjoy at least 5 extra healthy, independent years of life, while narrowing the gap between the experience of the richest and poorest (2035) [44].

STATUS AND RECOMMENDATIONS

HEALTHY LIFE EXPECTANCY AT BIRTH IN CORNWALL FOR FEMALES IS 62.3 YEARS, AND 62.5 YEARS FOR MALES (2018) [45]
SOURCE: ONS

HLE at birth in Cornwall has declined for both females and males from 2014-16 to 2016-18. Females born in 2016-18 have a HLE at birth that is 0.1 years shorter than those born in 2014-16, whilst the HLE at birth for males has dropped by 1.7 years, from 64.2 years recorded for those born in 2014-16. This downward trend contrasts with that for England, which has seen a slight increase of 0.1 years for both females and males over the same period. Differences between Cornwall and national data are relatively small but should be monitored in future years.

6.7.2   ECONOMIC INACTIVITY DUE TO LONG-TERM SICKNESS

By monitoring the proportion of people who are economically inactive due to long-term sickness we aim to capture the impact that physical and mental illness have on people's ability to live an active and positive life. The number of economically inactive people in the UK consists of people aged 16 and over without a job who have not sought work in the last four weeks and/or are not available to start work in the next two weeks. The main economically inactive groups are students, people looking after family and home, long-term sick and disabled, temporarily sick and disabled, retired people and discouraged workers. Here we include data only for those inactive with health conditions or illnesses lasting more than 12 months (which includes physical and mental ill-health).

No target identified.

STATUS AND RECOMMENDATIONS

52.9% OF ECONOMICALLY INACTIVE PEOPLE AGED 16-64 IN CORNWALL ARE INACTIVE DUE TO HEALTH CONDITIONS OR ILLNESSES LASTING MORE THAN 12 MONTHS (2020) [46]
SOURCE: ONS (NOMIS)

In Cornwall, 19.5% of working age people (16-64 years) are economically inactive, which is lower than the proportion for the same age group in England (20.9%) [46]. However, of those that are economically inactive, a greater proportion reported that this was due to long-term sickness in Cornwall (52.9%) than in England (49.2%). The number of people who are out of work due to temporary sickness was too small to calculate a reliable estimate for Cornwall. Therefore, at any one time there will be a slightly larger number of people out of work due to sickness than the number recorded in the data set.

See page 46 for notes on data and methodologies.

6.8 HOUSING

This domain seeks to identify how many people have housing security, i.e. a secure home to which you have direct access and can build a life from [47]. Raworth's model assessed this domain using the global urban population living in slum housing in developing countries. *The UK Doughnut* report uses 'overcrowding' as its indicator, but this is based on a one-off report produced in 2013 and the data are not available for Cornwall.

Indicators of homelessness can be used to monitor housing security in Cornwall. 'Homelessness' has a broad meaning and encompasses people living in unsuitable homes, as well as those who are sleeping rough [48]. Therefore, two indicators inform this domain: first, the number of people who approach the Council for an initial homelessness assessment; and second, the number of people sleeping rough. It should be noted that neither indicator shows the number of people regarded as 'hidden homeless', including, for example, those sofa-surfing (a problem chiefly among younger people), or living in hostels. Neither does it reflect other constraints on housing security such as affordability of homes or rent.

INDICATORS

6.8.1 HOUSING SECURITY

This indicator captures the number of people who approach their local authority for an initial homelessness assessment. Data are also available on the outcomes of initial assessments, i.e. whether applicants are classified as homeless or threatened with homelessness and what, if any, duty is owed to them by the local authority. However, because people's perceptions of their own housing security form an important element of this domain, we propose monitoring the total number of approaches made to the local authority. This captures all those who report feeling insecure, regardless of what statutory duty is owed to them by the local authority.

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

11.46 HOMELESSNESS ASSESSMENTS IN CORNWALL PER 1,000 HOUSEHOLDS (2019) [49]
SOURCE: MHCLG

This figure represents the annual number of homelessness assessments (per 1,000 households) comprising approaches to the local authority for an initial assessment of homelessness between January and December 2019. The figure for Cornwall is lower than the figure for England during the same period (12.8 per 1,000 households). Applications are recorded at household level, though individuals may be included in applications of multiple households within the same year due to changed circumstances [50].

6.8.2 ROUGH SLEEPING

The Government defines rough sleeping as people 'sleeping, about to bed down or actually bedded down in the open air (such as on the streets, in tents, doorways, parks, bus shelters or encampments); people in buildings or other places not designed for habitation' (e.g. stairwells, barns, sheds, car parks, cars, derelict boats, stations, or makeshift shelters) [51]. Sleeping rough is regarded to be a serious and devastating form of homelessness, and this group is particularly vulnerable.

EXISTING TARGETS

In *Cornwall's Partnership Approach to Preventing Homelessness & Rough Sleeping: Strategy 2020*-2025, Cornwall Council has committed to ending homelessness in line with the Government's target of eradicating rough sleeping by 2027 [52].

STATUS AND RECOMMENDATIONS

24 PEOPLE ARE SLEEPING ROUGH IN CORNWALL (2019) [53]
SOURCE: MHCLG

In England, the number of rough sleepers is counted once a year by each local authority as part of the Rough Sleeping Snapshot program. The annual figure for Cornwall has been used for the purposes of this indicator. This figure reflects a 76% drop in the number of rough sleepers from 2016, which had the highest snapshot count at 99 [54].

The Government's annual figures – collected by local authorities – are an estimate of the number of people sleeping rough on a single night between 1st October and 30th November. This approach is often criticised for its 'snapshot' approach and local authorities switching between count and estimate methods. It is likely to underestimate the number of people sleeping rough [55].

See page 46 for notes on data and methodologies.

6.9   INCOME

Monetary income is a critical component of the social foundation and is important for enabling people to meet their needs in other domains, for example food, fuel, and housing. Both Raworth and *The UK Doughnut* report measure income, consistent with wider approaches to measuring relative poverty. While the Cornwall Council Decision-Making Wheel, includes 'income and wealth', here we focus on income to provide insight into the number of people who are working and yet still earning less than would be needed to provide an adequate standard of living. Wealth is difficult to measure since it requires an assets calculation. The indicator proposed here is intended to reflect the adequacy of income among those in the lowest income categories, which is important in understanding whether people can meet their basic needs and have an acceptable standard of living.

INDICATORS

EMPLOYEE JOBS WITH AN HOURLY PAY BELOW THE REAL LIVING WAGE (RLW)

The RLW, as calculated by the Living Wage Foundation, is higher than the National Living Wage (or minimum) rate and is independently calculated based on the "best available evidence about living standards in London and the UK" (Table 2) [56]. Measuring the percentage of people who are in work and yet earning an hourly rate below the Real Living Wage is a useful way to capture the percentage of people likely to be in-work poverty. Cornwall Council has achieved accredited through the Living Wage Foundation as part of its commitment to ensuring people in Cornwall have decently paid jobs.

Table 2: Real Living Wage rates compared to National Living Wage (2018-2020). The National Living Wage for those aged 25 and over increased to £8.72 from April 2020.

YEAR	LONDON REAL LIVING WAGE (£)	REST OF THE UK REAL LIVING WAGE (£)	NATIONAL LIVING WAGE, 25+ (£)
2018/2019	10.55	9.00	7.83
2019/2020	10.75	9.30	8.21

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

26.8% OF EMPLOYEE JOBS IN CORNWALL HAVE AN HOURLY PAY BELOW THE RLW (2019) [57]
SOURCE: ONS (ASHE)

The proportion of employee jobs with an hourly pay below the RLW is higher in Cornwall at 26.8% than across England as a whole (20.1%) in 2019. This shows a similar picture to the data included in *The UK Doughnut*, which assessed the percentage of people in the UK living in households whose income is below 60 percent of median income to be 22% in 2010/11-2012/13 [8].

Despite the figure being higher in Cornwall than the rest of England, it was significantly lower in 2019 than in 2018, when it was 33.9%. In 2015, Cornwall Council pledged to adopt the Real Living Wage rate and is currently extending this policy to its contractors. A project is also underway for Penzance to become a Living Wage Accredited town, with plans to extend the RLW to employees in the schools and hospitals as well as in local businesses. This project could account for some of the reduction in the proportion of employee jobs with an hourly pay rate below the RLW between 2018-2019.

Further exploration of these data would be useful to identify how employment below the RLW is linked to inequalities. *The UK Doughnut* report highlights that single parents, single working-age households and couples with children most commonly experience in-work poverty, and that women are disproportionately affected.

See page 46 for notes on data and methodologies.

6.10 POLITICAL VOICE

This domain aims to gauge how empowered people feel and how much influence they feel they have in the democratic process. In Raworth's model this domain assessed the percentage of the global population that scored low on the *Voice and Accountability Index* which "captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media" [58]. *The UK Doughnut* report uses 'political efficacy', which "seeks to assess the impact that citizens can have on their political systems and the decisions made within them" [8]. The two indicators proposed here are 'voter turnout' and 'perceived civic influence'; when combined, these indicators capture the level of political 'voice' and influence people feel they have at a local level in the democratic process.

INDICATORS

6.10.1 VOTER TURNOUT

Voter turnout figures for Cornwall and England were sourced from those of the 2010, 2015, and 2017 General Elections [59]. These data for Cornwall can be readily compared with national trends.

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

VOTER TURNOUT FOR THE GENERAL ELECTION WAS 73.3% IN CORNWALL (2017) [59]
SOURCE: UK PARLIAMENT

In Cornwall, voter turnout for General Elections has been steadily increasing between 2010 and 2017, a trend reflected by figures for England as a whole. Of those eligible, 73.3% turned out to vote in 2017, an increase of nearly 6% from 2010 (67.5%). In England, voter turnout was 69.1% in 2017, up from 65.5% recorded in 2010.

The General Election turnout data should be read in conjunction with the second indicator (civic influence), as they do not provide insight into the level of influence people feel they have. People may 'turn up to vote' yet also question how much difference it will make to their lives, particularly in relation to general elections. However, this indicator is significant when trying to capture the level of political 'voice' and it enables participation levels in the voting process to be monitored over time.

6.10.2 CIVIC INFLUENCE

To reflect how much political 'voice' people feel they have at a community level, data were sourced from the ONS Community Life Survey [60]. This is an annual survey that has been carried out nationally since 2013. To identify feelings of civic influence, we used data that reflected how many people agreed that they personally can influence decisions affecting their local area.

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

28% OF PEOPLE IN THE SOUTH WEST AGREE THAT THEY CAN INFLUENCE DECISIONS AFFECTING THEIR LOCAL AREA (2019) [60]
SOURCE: ONS

The percentage of people in the southwest who agree that they can influence decisions in their local area (28%) is slightly higher than across England (25%) [60]. The England-wide data also show that 52% of respondents wanted to be more involved in local decision making.

The ONS Community Life Survey captures the extent to which people feel they have political influence, but at present these data represent the South West and are not available specifically for Cornwall. We recommend that in the future, Cornwall Council replicates the Community Life Survey question in the Cornwall Residents Survey. This will allow collection of Cornwall-specific data that are directly comparable to the national survey.

See page 46 for notes on data and methodologies.

6.11 SOCIAL NETWORKS

Raworth's domain titled 'Networks' was amended in *The UK Doughnut* report to 'Sense of Support', to capture how much social support people felt they had in times of need (from friends, family and wider networks). Cornwall Council's Decision-Making Wheel also incorporates cultural heritage in its 'Community and Culture' domain, recognising that a sense of cultural identity can contribute to people's sense of belonging or community. In line with the principles for indicator selection, we retained the focus on the extent to which people feel a sense of connectedness or social support and propose two indicators. The first assesses perceptions of community cohesion and the second assesses perceived isolation among individuals.

INDICATORS

6.11.1 SENSE OF COMMUNITY

Social relationships provide emotional and practical support during times of hardship, enabling resilience and community cohesion. The Cornwall Residents' Survey gauges people's perspective on the sense of community in their local area by asking: "To what extent would you agree or disagree that people in this area pull together to improve the local area?".

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

69% OF RESIDENTS IN CORNWALL AGREE PEOPLE IN THE LOCAL AREA PULL TOGETHER TO IMPROVE THE LOCAL AREA (2019) [17]
SOURCE: CORNWALL COUNCIL

The latest Cornwall Council Residents' Survey findings are similar to those published from previous surveys (63% in July 2019 and 67% in November 2018). The findings are higher than England-wide data, which shows that 58% of respondents in 2018-19 agreed that people in their neighbourhood pull together to improve the neighbourhood [60]. This indicator is the best available measure identified for community cohesion, however it does not necessarily reflect individuals' own sense of engagement with, belonging to, or support from their local community. *The UK Doughnut* report used data from the UK Poverty and Social Exclusion Survey, which are not available for Cornwall specifically [8]. This survey asks for people's perceptions of the quality of support they can depend upon in times of need (e.g. illness, loss of work, bereavement, relationship problems). In future Cornwall Council could consider collecting comparable data locally.

6.11.2 SENSE OF ISOLATION

As a rural area with a high proportion of elderly people, isolation can affect many people in Cornwall and it is directly impacted by levels of community support. To identify the number of people who have reported feeling a sense of isolation we used responses from the annual GP Patient Survey, which asked: "have you experienced feelings of isolation in the last 12 months?".

EXISTING TARGETS

No target identified.

STATUS AND RECOMMENDATIONS

7% OF GP PATIENTS IN CORNWALL HAVE EXPERIENCED FEELINGS OF ISOLATION IN THE PAST 12 MONTHS (2020) [61]
SOURCE: NHS (GP PATIENT SURVEY)

Annual data from the GP Patients survey from 2018-20 shows stable numbers reporting feelings of isolation in both Cornwall (6-7% each year) and England (7% each year). While this does not directly measure perceived

levels of support it highlights those who might be considered vulnerable and perceive themselves as isolated and lacking in social connections. *The UK Doughnut* report highlights that sense of support increases with greater household income and is lower in deprived areas, therefore it would be useful to further explore these connections using local data to identify which individuals and sections of society perceive themselves as lacking social support.

See page 46 for notes on data and methodologies.

6.12 WORK

Employment contributes to economic growth and impacts the wider community through the provision of goods and services, whilst affecting personal health, wellbeing, and overall quality of life. Raworth's model presented 'income and work' as a singular domain (using indicators for each to inform its overall status). *The UK Doughnut* **report argued that work is about more than remuneration; there is a relationship between satisfying, meaningful work and people's mental health and ability to engage in non-work activities in the community and with family. Unemployment and job insecurity are also important contributors to poor psychological and physical health** [62]**. Access to "full and productive employment and decent work for all" is part of SDG 8***, Decent Work and Economic Growth* [63]**.**

INDICATOR

PEOPLE UNWILLINGLY OUT OF WORK

For this domain we suggest an indicator that captures those who are unwillingly out of work. This includes those who are unemployed due to a lack of opportunity or job availability, which may be an indicator of the job market and/or an individual's qualifications. It also includes those who are unemployed due to other barriers, such as being a carer, or being temporarily or long-term disabled. These barriers are beyond individual control and prevent people from securing meaningful work.

EXISTING TARGETS

No target identified for this indicator. The Cornwall and Isles of Scilly (CIoS) *Vision 2030* strategy has a target for 'inclusive growth'; that "the proportion of workless households in Cornwall and the Isles of Scilly will be lower than the English average" [64].

STATUS AND RECOMMENDATIONS

8.5% OF PEOPLE OF WORKING AGE (16-64) IN CORNWALL ARE UNWILLINGLY OUT OF WORK (2019) [65]
SOURCE: ONS (NOMIS)

To find the number of people aged 16-64 who are unwillingly out of work, we calculated the proportion of people deemed to be of working age who are either economically inactive but want a job or economically active but unemployed (indicating people who are actively job-seeking/available to work). The figure for Cornwall is higher than that for England (7.5%) but regional and national numbers have declined slightly from 2018, when the proportion of economically inactive people aged 16-64 who were unwilling out of work was 8.6% in Cornwall, and 7.7% in England [65]. Understanding of this domain could be further improved through data on job security and job satisfaction.

See page 46 for notes on data and methodologies.

7 ENVIRONMENTAL CEILING: DOMAIN SUMMARIES

This section provides the rationale behind the interpretation of each domain and the indicators proposed, identifies existing relevant policy targets, explains the current status, and highlights data gaps or recommendations for Cornwall's environmental ceiling.

7.1 AIR POLLUTION

Air pollution is known to cause long and short-term effects on human health. For example, long term exposure to particulate matter (PM$_{10}$) heightens the risk of an individual developing cardiovascular and respiratory diseases, as well as of lung cancer [66]. Raworth's model reported on aerosol emissions (overall particulate concentrate), which can affect weather systems in areas of high concentration. For *The UK Doughnut* report, concentrations of PM were reported in the absence of a defined threshold.

Increased levels of air pollution have been reported to correlate with areas of deprivation across the UK, therefore, it is important for regional action plans to be drawn up to act on this at a local level [67].

INDICATOR

ANNUAL MEAN NO$_2$

Major sources of PM$_{10}$ are diesel fumes and dust thrown up by traffic and these are associated with serious health risks. Throughout the UK there are currently 150 active Automatic Urban and Rural Network (AURN) monitoring sites, allowing for an extensive review. Conversely, Cornwall has only one AURN site (Saltash), giving a far less representative figure for the whole of Cornwall. Considering the significance of the correlation between areas of deprivation and air pollution, and its adverse effects on respiratory health, it is more useful to use nitrogen dioxide (NO$_2$) as an indicator for Cornwall, as the data are available at a higher spatial resolution. The main sources of NO$_2$ in the UK are road transport, power stations and refineries, domestic and industrial combustion, and 'other' transport, such as rail and shipping; it is usually emitted with other pollutants, including fine particular matter (PM$_{2.5}$) [68].

EXISTING TARGETS

In the *Clean Air of Cornwall Strategy* Cornwall Council has set a target of 0% of sites to exceed annual mean NO$_2$ of 40μg/m^3 by 2030. This target is designed to meet national air quality objectives for England as set out in the UK Air Quality Strategy [69].

STATUS AND RECOMMENDATIONS

13.27% OF SITES IN CORNWALL EXCEED ANNUAL MEAN NO$_2$ LEVELS OF 40μG/M3 (2018) [70]
SOURCE: CORNWALL COUNCIL

The data informing this indicator provide good coverage of Cornwall and include readings from Air Quality Management Areas (AQMAs); the reduction of pollution within these sites forms part of the *Clean Air for Cornwall Strategy* [71].

Monthly data are also available, though measures are not taken consistently at a number of sites, meaning a high proportion of results would have to be omitted. Data for England are available yet not directly comparable. To fully assess PM$_{10}$ and PM$_{2.5}$ in Cornwall more monitoring sites would be required across the county.

See page 46 for notes on data and methodologies.

7.2   BIODIVERSITY LOSS

Biodiversity is integral to how ecosystems function and to provision of the services from which humanity benefits. A recent global assessment reported that the rate of global change in nature has accelerated over the past 50 years, a loss that poses a serious risk to human health and quality of life [72]**. In Raworth's model this domain assessed the rate of species extinction (per million species per year), providing a global measure of biodiversity loss. For** *The UK Doughnut* **report the number of UK farmland birds was compared to the 1970 baseline, which gave a long-term measure of how those species had declined over a 43 year period.**

The national *State of Nature 2019* **report revealed a decline in species abundance and distribution in the UK since 1970 levels; 15% of these species are threatened with extinction and 2% are already extinct** [73]**. Agricultural intensification, climate change, urbanisation, invasive species, and harmful pollutants have been the main drivers of this loss in biodiversity.**

INDICATORS

7.2.1   BIODIVERSITY TRENDS

Nationally, the *State of Nature 2019* report found that the abundance and distribution of the UK's species has, on average, declined since 1970 and these declines have continued in the most recent decade, with little reduction of pressures to biodiversity. There has been no let-up in the net loss of nature in the UK. Prior to 1970, the UK's wildlife had already been depleted by centuries of persecution, pollution, habitat loss and degradation [73]. Funding has been secured to produce a comparable *State of Nature* report for Cornwall and the Isles of Scilly.

EXISTING TARGETS

Cornwall's broad environmental ambitions for 2065 are for its environment to be "naturally diverse, beautiful and healthy, supporting a thriving society, prosperous economy, and abundance of wildlife" [1].

STATUS AND RECOMMENDATIONS

TBC FOLLOWING PUBLICATION OF THE STATE OF NATURE REPORT FOR CORNWALL
SOURCE: CORNWALL WILDLIFE TRUST/UNIVERSITY OF EXETER

A report by the Cornwall Wildlife Trust and the University of Exeter examining the 'State of Nature' for Cornwall is currently in development; the results of that report will be comparable to the national report and provide a strong baseline for this domain. The report will detail trends in key species groups, highlight pressures to biodiversity and the responses needed to reduce pressures.

7.2.2   PROGRESS TOWARDS AICHI TARGETS

The Aichi Biodiversity Targets were established by the Convention on Biological Diversity as part of the Strategic Plan for Biodiversity to provide time-bound (by 2020) measurable global targets. The targets comprise 55 sub-targets, divided between 20 "biodiversity target" groups. Five sub-targets (those under biodiversity target 16 and 17) are not applicable to Cornwall. An assessment of Cornwall's progress towards Aichi targets was conducted in 2016 [74].

EXISTING TARGETS

The Aichi targets apply to all United Nations (UN) countries and are amongst several international influences informing Cornwall's *Environmental Growth Strategy 2015-2065* [1].

STATUS AND RECOMMENDATIONS

4% OF AICHI TARGETS ACHIEVED; PROGRESS HAS BEEN MADE ON 58%; NO PROGRESS MADE ON 16%; SITUATION WORSENING FOR 22%
SOURCE: CORNWALL COUNCIL

Analysis of Cornwall's progress towards the 50 Aichi targets of relevance to Cornwall, showed that while progress is being made towards the majority (58%), only 4% have been achieved, and zero are rated as "Exceed". For 16% of the targets no progress has been made, and for 22%, the situation is worsening. The targets that have been achieved are 5.1 "The rate of loss of woodlands is at least halved and where feasible brought close to zero" and 9.1 "Invasive alien species identified and prioritised" [75].

These data give an indication of progress towards biodiversity targets, but are based on a one-off assessment and are used here as an interim indicator while the 'State of Nature' report for Cornwall is in development (see 7.2.1   biodiversity trends.

7.3   CHEMICAL POLLUTION

Raworth's 'chemical pollution' domain seeks to assess the "emissions of toxic and long-lived substances such as synthetic organic pollutants, heavy metal compounds and radioactive materials" [3]. There is currently no comprehensive index available for the UK, nor a clearly defined threshold.

Chemical pollution is defined by the Environment Agency (EA) as "priority substances and priority hazardous substances", the result of the use of herbicides, insecticides, pesticides, fungicides, disinfectants, industrial processes, and flame retardants. Many of these chemicals monitored by the EA are known carcinogens and can cause serious harm to ecosystems, including reduced fertility, altered genetic material, and bioaccumulation in the environment.

The UK Doughnut report used historic data from the General Quality Assessment (GQA) Scheme to provide data on the chemical quality of rivers in England. This scheme ended in 2009, replaced by the Water Framework Directive (2015), which informs our proposed indicator.

INDICATOR

CHEMICAL QUALITY OF SURFACE WATERS

The chemical status of surface waters is assessed by its chemical quality, measured by reference to the environmental quality standards for priority substances under the WFD, which specifies maximum annual average concentrations for specific water pollutants [76]. The chemical status of surface water bodies is measured as either 'good' or 'fail'; if part of a water body fails on any one of the criteria monitored, it will fail to achieve or lose good status [77].

EXISTING TARGETS

The river basin management plans for England have a target for 0% of surface waters to fail to achieve good chemical quality by 2027 [78].

STATUS AND RECOMMENDATIONS

16% OF SURFACE WATERS FAILED TO ACHIEVE GOOD CHEMICAL QUALITY (2016) [79]
SOURCE: ENVIRONMENT AGENCY

The number of surface waters that failed to achieve good chemical quality has decreased from 33% in 2009 to 16% in 2016, with the number of sites being monitored increasing from 12 to 106 during that same period. This trend paints a promising picture for Cornwall achieving its target by 2027. The Environment Agency Catchment Data Explorer is a consistent data source and provides good coverage of Cornwall's basin district.

The state of chemical pollution in a catchment areas is dependent on how these chemicals are managed within the agricultural and industrial sectors. These processes are addressed in the *Draft Cornwall Council's Farms Strategy 2019 – 2039*. This strategy promotes active support and financial incentives to tenants of Council Farms Estate who bring about improved water quality and Certified Organic production systems [80], and proposes Key Performance Indicators (KPI) from the Cornwall Council Environmental Growth strategy that can be used to monitor these processes, e.g. the area of farmland certified as organic.

See page 46 for notes on data and methodologies.

7.4   CLIMATE CHANGE

The planetary boundary for climate change, as used in Raworth's model, set a limit of global atmospheric carbon dioxide of 350 parts per million. This boundary has already been exceeded. Cornwall's coastal communities are at particular risk from the effects of climate change due to increased risk of floods, storms, and erosion. Predicted rising temperatures are expected to result in more heat related illnesses, increased transmission of vector-borne disease, and impacts on agriculture, indirectly affecting livelihoods [81].

The UK doughnut report used the Stockholm Resilience Centre (SRC)-based UK boundary of carbon dioxide consumption of 127.4 $MtCO_2$/year, which in 2011 was exceeded by 410% [8].

INDICATOR

7.4.1   TERRITORIAL CO_2 EMISSIONS

There are two methods of reporting CO_2 emissions: territorial (household and industrial) and consumptive (CO_2 embedded in goods and services). Reporting territorial emissions alone does not give a view of how much CO_2 a region is responsible for as it overlooks the consumptive habits of the individual. Following the methodology of the Stockholm Resilience Centre (SRC), *The UK Doughnut* reported on CO_2/year/per capita on a consumptive basis, arguing that a figure that incorporates both territorial and consumptive emissions would be the most representative.

The data available for Cornwall, although comprehensive, is solely from territorial $MtCO_2$ emissions and is available annually for Cornwall and the Isles of Scilly from Gov.uk. We have supplemented this with a second measure, metric tons of CO_2 equivalent ($MtCO_2e$), which incorporates six greenhouse gases (GHGs) from the Kyoto Protocol combined into a single CO_2 equivalent, thereby giving a more comprehensive reporting of GHG emissions. CO_2e is calculated from the global warming potential (GWP) of carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF6). $MtCO_2e$ data for Cornwall were reported in a recent inventory commissioned from the University of Exeter (2019) [82].

EXISTING TARGETS

Cornwall Council have committed to a carbon neutral target by 2030, going beyond the UK's 2050 target. The *Climate Change Action Plan* (2019) comprehensively outlines how Cornwall intends to make this a just transition that is 'fair for all,' framed by the UN Sustainable Development Goals [81]. Cornwall Council intends to take a sustainable economic approach, by planning and investing in green jobs in sectors such as energy efficiency, low-carbon fuels, and renewable energy.

STATUS AND RECOMMENDATIONS

TOTAL EMISSIONS IN CORNWALL AND THE ISLES OF SCILLY WERE 4,031 $KTCO_2E$ (2017)[i] AND 2,777 $KTCO_2$ (2017) [83]
SOURCE: DBEIS

Between 2008-2017, there was a 20% reduction of CO_2 equivalent emissions in Cornwall and the Isles of Scilly, from 5,010 $ktCO_2e$ to 4,031 $ktCO_2e$. CO_2 emissions for the same region reduced by 33% between 2008-2017, from 4,120 $ktCO_2$ to 2,777 $ktCO_2$.

See page 46 for notes on data and methodologies.

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[i] 1 kiloton (Kt) is equal to 1000 metric tons (Mt).

7.5   LAND USE CHANGE

The planetary boundary for land use change, as used in Raworth's model, set a limit of 15% on global land cover that could be converted to crop land. The rationale was that human causes of Earth system stress – the conversion of ecosystems for agricultural and urban use – presented a serious threat to habitats and biodiversity, carbon storage, climate systems and freshwater [4].

The UK Oxfam report opted to use the safe limit proposed by the United Nations Environmental Programme (UNEP) of land use change being stabilised at 0.2 ha/capita by 2020, which considers predicted population growth and the resultant demand for urban development [8].

INDICATORS

7.5.1   LAND COVER

The Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) has been creating detailed habitat and landscape maps of Cornwall at ~10-year intervals since 1988. The last land cover map was produced in 2005. Production of the most up to date land cover map is planned for 2021.

EXISTING TARGETS

Cornwall's broad environmental ambitions for 2065 are for its environment to be "naturally diverse, beautiful and healthy, supporting a thriving society, prosperous economy, and abundance of wildlife" [1].

STATUS AND RECOMMENDATIONS

TO BE CONFIRMED
SOURCE: ERCCIS

In Cornwall, agriculture currently accounts for 78% of the region's land use [80]. During the period 1995-2005 the most significant change was a c.1000 ha increase in urban area, primarily at the expense of agricultural land, though relative to the total area of land devoted to agriculture the overall change was small (<1%). Modest losses of fen, marsh and swamp and unimproved grassland also occurred. Following completion of the latest assessment, it will be possible to quantify more recent land conversion and to understand long term changes and threats facing semi-natural habitats in Cornwall. There is a need, however, to assess habitat quality as well as land use change, as the most significant changes to Cornwall's semi-natural habitats are likely to stem from deterioration of habitat quality as opposed to conversion to other land cover and use types.

7.5.2   LAND USE FOR ENVIRONMENTAL GROWTH

Cornwall's Environmental Growth Strategy recognises that sustainable quality of life in Cornwall is reliant upon a healthy environment. Enhancing the quality and productivity of the environment will support a stronger foundation for prosperity.

EXISTING TARGETS

Cornwall Council's Environmental Growth Key Performance Indicator report sets a target for 30% of Cornwall's land surface area to be in positive management for environmental growth by 2030.

STATUS AND RECOMMENDATIONS

20.7% OF CORNWALL'S LAND PROVIDED ENVIRONMENTAL GROWTH
SOURCE: CORNWALL'S ENVIRONMENTAL GROWTH STRATEGY: MONITORING AND EVALUATION FRAMEWORK (2020: NOT YET PUBLISHED).

Currently, 20.7% of Cornwall's land provides environmental growth. This includes areas covered by Sites of Special Scientific Interest (SSSI) designations, areas included in mid-tier and higher-level stewardship (or equivalent) Agri-environment schemes, areas of land in positive ownership (e.g. National Trust, RSPB, CWT reserves) and areas of land on which environmental growth projects have successfully been completed.

7.6   OCEAN HEALTH

The planetary boundaries included in Raworth's model include ocean acidification, which reflects the potential for the changing chemistry of the ocean to compromise ecological integrity and functioning, with consequences for the structure and dynamics of ocean ecosystems, and for fish stocks and other resources that society depends on. Because it is not feasible to measure ocean acidification at a scale appropriate to Cornwall and the Isles of Scilly, we focus here on alternative indicators of the health of the marine environment.

With over 400 miles of diverse coastline, the marine environment plays an essential part in Cornwall's economy and cultural identity; ensuring its sustainable management is therefore integral to create a safe and just space for all. The Cornwall Maritime Strategy 2019-2023 states Cornwall's priorities are to follow a sustainable, integrated approach and foster healthy and resilient communities [89]. The conservation of marine ecosystems and the sustainable harvesting of fish are vital to achieve this, as currently only 65.8% of stocks globally are within biologically sustainable levels [90]. Here we propose two indicators: one capturing the sustainability of fisheries, and the other measuring bathing water quality to reflect the importance of clean water for both ecosystems and recreational users.

INDICATORS

7.6.1   SUSTAINABLY HARVESTED FISH STOCKS

Fishing has been an integral component in Cornwall's economy and culture for a long period of time. In 2017 13,600 tonnes of fish (demersal, pelagic, and shellfish) worth £29.9 million were landed in Newlyn, the region's largest port; representing the second-largest quantity and value of landings in England behind Brixham, Devon [91].

The UK Doughnut report suggested ocean harvesting of fish stocks as a suitable indicator for oceanic health, measuring the sustainability of marine ecosystems. Cornwall Council similarly opted to use include the domain 'Ocean health' rather than 'Ocean acidification' in the Decision-Making Wheel, though the indicator they chose to look at (ecosystem health) is indirectly linked to the sustainable harvesting of fish stocks. The indicators used here align with the South West Ocean Health Index+ assessment [92]. The first measures the percentage of recorded landings (by weight) that come from under-fished or recommended species. The OHI+ classifies sustainably fished species as 'under-fished' or 'recommended' based on either stock biomass assessments or the Marine Conservation Society's sustainability ranking. The second indicator assesses the proportion of species (or taxonomic groups if species-level data are not recorded) that are considered to be sustainably harvested.

EXISTING TARGETS

Not yet defined. A target outcome of Cornwall Council's Maritime Strategy is to "achieve a sustainable future for maritime Cornwall that balances appropriate economy growth, supports resilient communities and protects the environment" [89].

STATUS AND RECOMMENDATIONS

***IN 2018, 28% OF LANDINGS IN CORNWALL AND 24% IN THE ISLES OF SCILLY CAME FROM UNDER-FISHED/RECOMMENDED SPECIES. 43% OF SPECIES/TAXONOMIC GROUPS IN CORNWALL AND 54% IN THE ISLES OF SCILLY WERE CONSIDERED SUSTAINABLY HARVESTED** [93]*
SOURCE: DATA PROVIDED BY SOUTH WEST OCEAN HEALTH INDEX (OHI)

In Cornwall, the proportion of landings from under-fished/recommended species has declined from 37% in 2014 to 28% in 2018. The proportion of species/taxonomic groups classified as harvested sustainably in Cornwall has also declined from 51% in 2014 to 43% in 2018.

In contrast, the proportion of landings from under-fished/recommended species has increased in the Isles of Scilly, from 19% in 2014 to 24% in 2018. The proportion of species/taxonomic groups classified as harvested sustainably in the Isles of Scilly has declined from 61% in 2014 to 54% in 2018.

7.6.2 BATHING WATER RATINGS

Bathing water quality impacts local communities and access to nature and affects human and ecosystem health, whilst also being significant for tourism, a key economic sector in Cornwall. Designated bathing waters are beaches or inland waters that are popular for bathing, where the Environment Agency tests the water quality between May and September each year; these sites are officially designated by the Secretary of State and are covered by the Bathing Water Regulations [94]. There are currently 419 designated bathing waters in England, with 89 (21%) located in Cornwall [95].

EXISTING TARGETS

None identified.

STATUS AND RECOMMENDATIONS

85% OF DESIGNATED BATHING WATERS IN CORNWALL RATED 'EXCELLENT' QUALITY (2019) [96]
SOURCE: ENVIRONMENT AGENCY

Waters are tested against bacteriological criteria annually, with 'Excellent' being the highest rating for bathing waters. Since the data for designated bathing waters is collected annually by the Environment Agency, there is a regular data set that would allow for easy comparison year-on-year. The drawback of this is that the designation of sites as official bathing waters can change year to year (80 sites have been declassified in England since 2015). Given the high number of designated bathing waters in Cornwall this indicator does provide good coverage of the region.

See page 46 for notes on data and methodologies.

7.7 SOIL AND WATERWAY HEALTH

This domain focuses on the interconnection between soil and waterway health. The treatment of agricultural soil with fertilizers is a major source of ecological pollution as runoff leaches into the environment. Agricultural pollution of waterways can lead to serious environmental degradation, such as eutrophication, causing algal blooms which greatly restrict the oxygen levels available for other organisms. In Raworth's model this domain considers nitrogen and phosphorous loadings as a result of the application of fertiliser to land. The *UK Doughnut* report considered imports of manufactured nitrogen (MtN), and phosphorous loads in UK rivers.

The main issues pertaining to management of water bodies in the South West are pollution from wastewater or sewage, which can contain large amounts of nutrients (such as nitrates and phosphorus). These can enter water bodies that are not treated to remove excess nutrients. During wet weather storm overflows can cause untreated sewage to enter waterways, including bathing waters (see Section 7.6.2). Changes in rainfall patterns due to climate change are increasing pressures on the sewer network.

INDICATOR

ECOLOGICAL QUALITY OF WATER BODIES

We have limited the definition of ecological pollution here to Nitrogen and Phosphorous pollution of surface waters. As with chemical quality, ecological quality is measured with reference to the environmental quality standards for priority substances under the Water Framework Directive, which specifies maximum annual average concentrations for specific water pollutants [76]. The ecological status of surface water bodies is measured as either 'high', 'good', 'moderate', 'poor' or 'bad'; if part of a water body fails on any one of the criteria monitored, it will fail to achieve or lose good status [97].

EXISTING TARGETS

The river basin management plans for England have a target for 0% of surface waters failing to achieve good ecological quality by 2027 [98]. Cornwall's *Environmental Growth Strategy* states that a "reduction in all forms of pollutions including litter, noise and light, to our water, air and soil" is required to achieve its target outcomes, though these are not quantified in the report [1].

STATUS AND RECOMMENDATIONS

13% OF WATER BODIES IN CORNWALL FAILED TO ACHIEVE GOOD ECOLOGICAL (NITROGEN AND PHOSPHORUS) QUALITY (2016) [99]
SOURCE: ENVIRONMENT AGENCY

This proportion of water bodies failing to achieve good ecological quality has increased from 10% in 2009. However, the number of sites monitored in the region has changed substantially in the same period; 155 sites were monitored in 2009, the highest number, 412, being monitored in 2014, and 218 in 2016. Due to this fluctuation, the data does not present an accurate trend.

See page 46 for notes on data and methodologies.

7.8 WASTE

Raworth's model places great significance on the need to move to a Circular Economy, creating a system that is "regenerative by design" [3]. The life cycle of most products is linear; they are exhausted and often disposed to landfill, thereby losing precious energy that was used in the resource extraction and putting additional stress on waste systems. Moving to a circular life means exhausting the product to the end of its utility, then recovering and regenerating it into something new. For a cycle fully to function, governments, businesses, and individuals need to cooperate through transparent information sharing and shared targets. Recycling is the most widely known example of this, but barriers still exist within this as many products are still non-recyclable and recycling rates are still low.

INDICATOR

HOUSEHOLD WASTE DISPOSAL

Reduction and regeneration of waste is integral to the circular economy as well as contributing to greenhouse gas emissions reduction [100]. DEFRA record household waste collected by local authorities, measured by weight, accounting for waste collected from civic amenity sites and bulky waste collections.

EXISTING TARGETS

The UK Government's strategy for resources and waste includes multiple national targets for England: 50% recycling rate for household waste by 2020; 75% recycling rate for packaging by 2030 (subject to consultation); 65% recycling rate for municipal solid waste by 2035; municipal waste to landfill 10% or less by 2035 [101].

STATUS AND RECOMMENDATIONS

OF THE HOUSEHOLD WASTE GENERATED IN CORNWALL 39% IS RECYCLED, 56% IS INCINERATED (ENERGY FROM WASTE), AND 5% IS SENT TO LANDFILL (2019) [102,103]
SOURCE: DEFRA

The total waste produced in Cornwall has remained relatively stable, with 268,000 tonnes generated annually between 2014 and 2017, and 267,000 tonnes in 2018. Rates of recycled and composted waste have fluctuated over this period, though this has increased from 36% in 2014 to 39% in 2018. There has been a substantial decline of waste sent to landfill in Cornwall; rates were between 63-66% for the years 2014-2016 though this dropped to 11% in 2017 and 5% in 2018, a consequence of the majority of waste being incinerated with energy from waste since 2017 (53% in 2017 and 56% in 2018). This decline in landfill waste is in line with rates for England (25% in 2014; 11% in 2018), though Cornwall has a higher proportion of waste incinerated with energy from waste compared to England, which was 43% in 2018.

When used alone, ratios such as the recycling rate are not good metrics as they do not reflect the need for, nor progress towards, reducing total waste and non-recycled waste. For example, if total waste generated is 1,000 kg/person/year in 2020 and the recycling rate is 40% (i.e., 600 kg non-recycled waste), and by 2030 the total waste generated grows to 2,000 kg/person/year and the recycling rate increases to 60% (i.e., 800 kg non-recycled waste), the increased recycling rate alone would suggest progress, despite more non-recycled waste being generated. We therefore recommend that weight metrics be used to quantify progress in future, and to define a boundary for the environmental ceiling.

See page 46 for notes on data and methodologies.

7.9   WATER RESOURCES

The Stockholm Resilience Centre (SRC) frame this domain by stating that "human pressure is now the dominant driving force determining the functioning and distribution of global freshwater systems" [104]**. It has been predicted that by 2040 the UK could face water shortages due to climate change and population growth** [105]**. The SRC proposed a global boundary that takes into account consumptive freshwater use and environmental flow requirements. The planetary boundary of 4,000km^3 amounts to 585m^3 per capita, per year; the SRC advised that this would not be transferable to a territorial basis as it does not take into account local supply and demand.**

In 2018, daily demand for water in England and Wales totalled 14bn litres per day, with an additional 4bn litres per day being required by 2050 to counter the risk of droughts due to climate change [106]**. Cornwall is mostly reservoir fed, with an effective grid system that transports water to areas of need. However, concerns have been expressed about current levels of water supply, and Cornwall is sensitive to low flows (under 50%) due to predicted impacts of climate change.**

INDICATORS

SUPPLY-DEMAND OF FRESHWATER

The supply-demand balance for the Water Resource Zone (WRZ) Colliford, which covers most of Cornwall with the exception of the North East, is calculated by subtracting the distribution input by the total water available for use. A positive value indicates there is a surplus of water resources.

EXISTING TARGETS

Supply-demand balance to be 25.45 Ml/d by 2045 with climate change adaptions [78].

STATUS AND RECOMMENDATIONS

THE SUPPLY-DEMAND BALANCE OF FRESHWATER IN CORNWALL WAS 16.23ML/D (2017/18) [78]
SOURCE: ENVIRONMENT AGENCY

The current status shows that in 2017 there was surplus in supply (16.23 Ml/d). South West Water have forecast that the water resources will remain in surplus for the next two decades. By 2045 it is predicted that the baseline supply demand balance for freshwater withdrawals will be 14.58 Ml/d and by taking additional actions to address climate change, could see an increase of 75% to 25.45 Ml/d.

It is difficult to get accurate predictions as the amount of water used each year is weather dependent. There are also anomalies, such as this year where household water consumption has risen due to lockdown.

See page 46 for notes on data and methodologies.

8   CONCLUSIONS

This report presents an initial assessment of the 'state of the Doughnut' in Cornwall (and the Isles of Scilly where possible). It has considered how the domains of the doughnut economics model can be meaningfully interpreted and applied at the relevant spatial scale to focus on outcomes that are central to sustainable development priorities in the region.

In consultation with regional researchers and practitioners, we have reviewed and identified the available datasets relevant to each domain, to propose indicators that can be used to monitor status and trends over time. The proposed indicators provide a baseline from which to evaluate progress towards achieving a social foundation that meets human needs while also reducing environmental pressures. In the absence of 'boundaries' at regional level, this report serves as a baseline from which direction of travel can be tracked, serving as a framework for driving collective focus on moving in the right direction on all outcomes. Where applicable, the report also highlights relevant existing regional or other policy goals and targets.

The findings of this report can be developed in a number of ways:

- **Data gaps:** the report has highlighted a number of data gaps, including areas where data are infrequently updated; do not reflect the entirety of the issues represented in the domain; or are proxies to assess the outcomes of interest. In some cases, projects are already underway to fill these data gaps, but in others, there are opportunities to streamline data collection efforts to align with priority areas.

- **Spatial and temporal coverage:** the majority of data used for indicators are aggregated at a county level. Many datasets do not have comparable data for the Isles of Scilly, nor do they separate Cornwall and the Isles of Scilly. Some relevant data collected at a UK scale are not available in a geographically disaggregated format or have insufficient sample sizes to be used at a finer scale. In some cases, there are opportunities to replicate this data collection at a regional level, for example in local surveys.

- **Spatial inequalities:** there are important spatial inequalities within the region in relation to many of the domains, which were not explored here. For some of the indicators, data are available at finer spatial scales and it would be informative to explore these differences to understand geographic inequalities and areas of concern where improvement might be prioritised.

- **Social inequalities:** challenges remain in disaggregating data to identify inequalities among groups. This report reintroduced the domain of 'Inequality' to capture some of these indicators in the absence of disaggregated data for other domains that would enable a more cross-cutting analysis. Further work is needed to examine these and other inequalities in order to meet the SDG goal of ensuring that 'no-one is left behind'.

- **Reference points:** in some cases, no relevant policy goals or targets were identified in relation to a particular domain (or an indicator within a domain). Further work is needed to establish appropriate goals or targets for each social and ecological domain, or the proposed boundaries or thresholds that should not be exceeded in order to maintain a safe and just space for sustainable development.

- **Community perspectives:** this report outlines the perspectives of researchers and practitioners on the areas of relevance to Cornwall and the Isles of Scilly in each domain. It would be useful to further develop this perspective by engaging with citizen's priorities across the region to identify areas of public concern for which other relevant indicators may be available.

Given that many of the anchor institutions in Cornwall have declared their commitment to carbon neutrality and environmental growth, the doughnut provides a way to operationalise these ambitions, and chart progress over time while incorporating considerations of social justice and societal wellbeing. By regularly revisiting these indicators to assess progress, this benchmark assessment can inform reporting to the Cornwall

and Isles of Scilly Leadership Board on long-term ecological and social trends. This collaborative initiative represents an early example of experimentation with the doughnut economics model as a tool to embed and monitor progress towards sustainable development. As such, it makes an important contribution to a wider set of initiatives engaged in 'downscaling the doughnut' to inform sustainable development within a particular geographic area [107].

NOTES ON DATA AND METHODOLOGIES

SOCIAL FOUNDATION INDICATORS

CONNECTIVITY: INTERNET ACCESS
Source: ONS

Table 3 shows the percentage of internet users compared to non-users for Cornwall and the Isles of Scilly compared with the UK.

Table 3: Recent and lapsed Internet users and non-users. Source: (ONS).

	INTERNET USERS AND NON-USERS AGED 16 AND OVER			
	% USED IN THE LAST 3 MONTHS		% USED OVER 3 MONTHS AGO/NEVER USED	
YEAR	CORNWALL & IoS	UK	CORNWALL & IoS	UK
2013	81.6	83.3	18.4	16.5
2014	83.2	85	16.7	14.8
2015	79.9	86.2	20.1	13.5
2016	88.1	87.9	11.8	12
2017	82.1	88.9	17.6	10.9
2018	85	89.8	15	10
2019	91	90.8	9	9.1

CONNECTIVITY: EASE OF ACCESS TO ESSENTIAL SERVICES (BY ANY FORM OF TRANSPORT)
Source: NHT

Table 4 displays the results of the 2019 National Highways & Transport Network (NHT) Public Satisfaction Survey. Ease of access relates to the individuals opinion on their ability to key services, encompassing: work, the post office or bank, local shops or supermarkets, the hospital, health facilities, education centres, leisure facilities and friends and family. The NHT average is taken from the 111 Local Authorities that took part in the survey.

Table 4: Public satisfaction Survey; Ease of access to services. Source: (NHT).

	KEY BENCHMARK INDICTORS (KBI'S) FOR ACCESSABILITY 2019		
	EASE OF ACCESS (ALL)	EASE OF ACCESS (DISABILITIES)	EASE OF ACCESS (NO CAR)
CORNWALL	72%	61%	66%
NHT AVERAGE	75%	64%	70%

CRIME: 'VIOLENCE WITH INJURY' RECORDED CRIMES
Source: ONS

Table 5 shows the number of reported 'violence with injury' crimes recorded in Cornwall and England per 1000 pop, and the average per 1000 pop for the MSF group.

We used annually produced ONS data for Recorded Crime by Community Safety Partnership Area and Police Force Area tables to find figures for the number of 'violence with Injury' crimes committed in Cornwall and England per 1000 population. We then calculated the average number of 'Violence with Injury' crimes committed per 1000 population in the 'Most Similar Family' (MSF) group. Each force has a unique group to which it is 'most similar', and Cornwall's MSF group includes the following Local Authorities: Cornwall, Somerset, North Warwickshire, West Lancashire, Newark and Sherwood, North West Leicestershire, High

Peak, East Staffordshire, Herefordshire (County of), North Devon, Carlisle, Shropshire, Cheshire West and Chester, South Worcestershire, King's Lynn, and West Norfolk.

Table 5: 'Violence with injury' recorded crimes. Source: (ONS).

PERIOD	CORNWALL (PER 1,000 POP.)	MSF (AVERAGE PER 1,000 POP.)	ENGLAND (PER 1,000 POP.)
YEAR END DEC. 2019	8	7.9	9.1

CRIME: PERCEIVED LEVEL OF SAFETY
Source: CORNWALL COUNCIL

Table 6 shows the results of the Cornwall Council's Residents' Survey for the question, 'To what extent do you agree or disagree that the Council and the police are dealing with anti-social behaviour and crime issues that matter in your local area?' 500 Cornish residents were interviewed which gives a confidence interval of +/- 4.3% at the 95% confidence level. A result for the above question must change by 4.3% or more to be statistically valid.

Table 6: Residents' Survey Report. Source: (Cornwall Council).

QUESTION: TO WHAT EXTENT DO YOU AGREE OR DISAGREE THAT THE COUNCIL AND THE POLICE ARE DEALING WITH ANTI-SOCIAL BEHAVIOUR AND CRIME ISSUES THAT MATTER IN YOUR LOCAL AREA?		
RESPONSE	SUMMER 2019	AUTUMN 2019
AGREE	41%	43%
NEITHER	24%	21%
DISAGREE	29%	30%
DON'T KNOW	6%	6%

EDUCATION: GCSE ATTAINMENT & "GAP" IN ATTAINMENT BETWEEN DISADVANTAGED AND NON-DISADVANTAGED YOUNG PEOPLE
Source: CORNWALL COUNCIL

Table 7 shows the percentage of disadvantaged young people who achieved a 'strong' 9-5 GCSE pass in Maths and English; and 'gap' in attainment between disadvantaged and non-disadvantaged young people. The data were taken from Cornwall Council's 2020 End of Year Report.

Table 7: GCSE attainment for disadvantaged and non-disadvantaged young people. Source: (Cornwall Council).

YEAR	% OF DISADVANTAGED YOUNG PEOPLE IN CORNWALL WHO ACHIEVED A "STRONG" 9-5 GCSE PASS IN MATHS AND ENGLISH	"GAP" IN ATTAINMENT BETWEEN DISADVANTAGED AND NON-DISADVANTAGED YOUNG PEOPLE
2018/19	18.2%	26.6%
2019/20	19.6%	25.3%

EQUALITY: AVERAGE % GENDER PAY GAP FOR FULL-TIME AND PART-TIME EMPLOYEES
Source: ONS

Table **8** shows the gender pay gap from the Annual Survey of Hours and Earnings (ASHE) conducted by ONS, which displays the mean percentage difference between hourly adult earnings between men and women. It is not a measure for equal pay for equal work, rather it is an analysis of women's opportunities to move into more senior, higher paid employment. The closer to zero the more equal the earnings are between the genders, while minus figures indicate women are earning more.

Table 8: Average % gender pay gap for full time and part time employees. Source: (ONS).

YEAR	MEAN GENDER PAY GAP			
	% OF FULL-TIME EMPLOYEES		% OF PART-TIME EMPLOYEES	
	CORNWALL	ENGLAND	CORNWALL	ENGLAND
1997	14.7	20.8	33.5	17.2
1998	13.9	21.5	18.9	14.6
1999	10.6	20.5	20	15.8
2000	7.2	20.6	28.6	12
2001	12	20.6	24.5	10.5
2002	10.2	20.6	-	18.2
2003	11.7	20.1	9.9	16.7
2004	9.4	18.6	15.5	14.3
2005	10.3	18	13.1	15
2006	13.3	18.4	33.4	14
2007	5.9	17.8	18.4	14.7
2008	7.1	18.2	32.8	17.4
2009	9.2	17.2	22.2	13.5
2010	3.6	16.4	24.7	12
2011	2.5	16.8	6	11.6
2012	3.7	15.5	3.3	8.6
2013	5.7	16.4	14.9	5.6
2014	5.2	15.1	0.8	4.7
2015	2.7	15	4.5	3.4
2016	2.4	15	5.2	6.5
2017	3.3	14.9	3.2	5.9
2018	1.3	14.8	-3.2	6.8
2019	-0.1	13.8	3.2	6.5

EQUALITY: BAME STOP AND SEARCH
Source: DEVON AND CORNWALL POLICE

Table 9 is the number of stop and search cases in Cornwall and Isles of Scilly recorded by ethnicity. The figure we have presented for 2019-20 was provided to us from a Devon and Cornwall Police briefing paper released on 18th August, which did not include the full dataset for this year. The values shown in Table 10 are for the stop and searches per 1,000 of population for 2019-20. There were 1,173 stop and searches in this period, 15 were of black people, revealing a disproportionate number of stop and searches on members of the black community.

Table 9: Number of stop and search cases in Cornwall and Isles of Scilly by Ethnicity. Source: Devon & Cornwall Police.

ETHNICITY											
YEAR	ARABIC OR NORTH AFRICAN	ASIAN	BLACK	CHINESE OR OTHER ASIAN	NOT RECORDED	UNKNOWN	WHITE - NORTH EUROPEAN	WHITE - SOUTH EUROPEAN	BAME TOTAL	GRAND TOTAL	% BAME
2017	1	4	11	2	36	3	626	2	18	685	2.63
2018	0	9	8	3	57	10	548	4	20	639	3.13
2019	4	14	25	0	10	112	850	33	43	1048	4.1

Table 10: Stop and searches per 1000 of population by ethnicity for 2019-20. Source: (Cornwall & Devon Police).

STOP AND SEARCHES PER 1,000 OF POPULATION BY ETHNICITY						
ETHNICITY	WHITE	ASIAN	BLACK	MIXED	OTHER	BAME TOTAL
2019-20	1.6	3.3	18.4	1.3	2.2	3.5

FOOD: FOOD BANK USAGE
Source: THE TRUSSELL TRUST

Families or individuals facing food insecurity can exchange a voucher obtained from health or social professionals or Citizens Advice for a three-day emergency nutritional food parcel from the Trussell Trust. Table 11 shows the annual number of 3-day parcels given out in Cornwall compared to England, displaying the year on year change.

Table 11: 3-day food parcel distribution for Cornwall and England. Source: (The Trussell Trust).

YEAR	AREA	NUMBER OF 3-DAY EMERGENCY FOOD PARCELS GIVEN BY THE TRUSSELL TRUST			
		ADULTS	CHILDREN	TOTAL	YOY % CHANGE
2018/19	CORNWALL	10,595	6157	16,752	+8%
	ENGLAND	778,924	456,968	1,235,892	+18%
2017/18	CORNWALL	-	-	15,392	-
	ENGLAND	-	-	1,046,807	-

FUEL POVERTY: HOUSEHOLDS IN FUEL POVERTY
Source: DBEIS

Fuel poverty is defined in England by a household that has fuel costs above the national average that would cause them to be left with a residual income below the official poverty line [108]. Table 12 displays the proportion of fuel households in Cornwall in comparison to rest of England.

Table 12: Households in fuel poverty. Source: (DBEIS).

YEAR	CORNWALL			ENGLAND (THOUSANDS)		
	NUMBER OF HOUSEHOLDS	NUMBER OF HOUSEHOLDS IN FUEL POVERTY	PROPORTION OF HOUSEHOLDS FUEL POOR (%)	NUMBER OF HOUSEHOLDS	NUMBER OF HOUSEHOLDS IN FUEL POVERTY	PROPORTION OF HOUSEHOLDS FUEL POOR (%)
2011	234,519	44,826	19.1	21.918	3,202	14.6
2012	237,557	54,159	22.8	21,935	2,283	10.4
2013	242388	34998	14.4	22,583	2,347	10.4
2014	242313	36217	14.9	22,542	2,379	10.6
2015	241,496	34,176	14.2	22,657	2,502	11
2016	242,696	31,060	12.8	22,996	2,551	11.1
2017	249,359	32,883	13.2	23,197	2.532	10.9
2018	252,948	31,826	12.6	23,411	2,400	10.3

HEALTH: HEALTHY LIFE EXPECTANCY AT BIRTH
Source: ONS

Table 13 displays the Healthy Life Expectancy (HLE) of males and females in Cornwall compared to the rest of England. HLE is an estimate of how long the average person might be expected to live in a healthy state and combines a statistical prediction of life expectancy with a self-reported health status.

Table 13: Healthy life expectancy at birth. Source: (ONS).

PERIOD	HEALTHY LIFE EXPECTANCY AT BIRTH			
	CORNWALL		ENGLAND	
	MALE	FEMALE	MALE	FEMALE
2014 - 16	64.2	62.4	63.3	63.8
2015 - 17	63.0	64.6	63.4	63.8
2016 - 18	62.5	62.3	63.4	63.9

HEALTH: ECONOMIC INACTIVITY DUE TO LONG-TERM SICKNESS
Source: ONS (NOMIS)

Table 14 displays the proportion of people who are 'economically inactive' due to long term sickness in Cornwall versus England from the Labour Force Survey.

Table 14: Economic inactivity attributed to long term sickness. Source: (ONS (NOMIS)).

AREA	ECONOMIC INACTIVITY (APR 2019 – MAR 2020)	
	% OF PEOPLE AGED 16-64 WHO ARE ECONOMICALLY INACTIVE	% OF ECONOMICALLY INACTIVE PEOPLE AGED 16-64 ATTRIBUTED TO LONG TERM SICKNESS
CORNWALL	19.5	29.5
ENGLAND	20.6	23

HOUSING: HOUSING SECURITY
Source: MHCLG

By adding together the number of households that had an initial assessment for homelessness for the year 2019 (Jan – Dec) and dividing this number by the number of households (000s) in that area, Table 15 shows the annual number of households (000s) approaching Cornwall Council for an initial assessment of homelessness from January to December 2019. The same methodology was applied to reach the national figure.

Table 15: Annual number of households (000s) approaching Cornwall Council for an initial assessment of homelessness. Source (MHCLG).

PERIOD	AREA	TOTAL INITIAL ASSESSMENTS	NUMBER OF HOUSEHOLDS IN AREA (000S)	INITIAL ASSESSMENTS MADE (PER 000S)	MEAN TOTAL INITIAL ASSESSMENTS MADE (PER 000S)
JAN - MARCH 2019	CORNWALL	767	245	3.1	-
	ENGLAND	76,520	23,386	3.2	-
APRIL - JUNE 2019	CORNWALL	672	245	2.7	-
	ENGLAND	74,180	23,386	3.2	-
JULY - SEPT 2019	CORNWALL	706	245	2.8	-
	ENGLAND	77,270	23,386	3.3	-
OCT-DEC 2019	CORNWALL	662	245	2.7	-
	ENGLAND	70,990	23,386	3.0	-
JAN - DEC 2019	ENGLAND	-	-	-	12.8
	CORNWALL	-	-	-	11.46

HOUSING: ROUGH SLEEPING
Source: MHCLG

Table 16 displays the snapshot figure of the total number of people sleeping rough in Cornwall in autumn.

Table 16: Annual rough sleeping statistics. Source: (MHCLG).

YEAR	TOTAL NUMBER OF PEOPLE SLEEPING ROUGH IN CORNWALL IN AUTUMN
2016	99
2017	68
2018	53
2019	24

INCOME: EMPLOYEE JOBS WITH AN HOURLY PAY BELOW THE REAL LIVING WAGE (RLW)
Source: ONS (ASHE)

Table 17 shows the annual percentage of employees earning below the living wage foundation rates in Cornwall in comparison to the rest of England.

Table 17: Employees earning below the Living Wage Foundation rates. Source: (ONS (ASHE))

YEAR	EMPLOYEES EARNING BELOW THE LIVING WAGE FOUNDATION RATES			
	CORNWALL		ENGLAND	
	JOBS (THOUSANDS)	PERCENT (%)	JOBS (THOUSANDS)	PERCENT (%)
2018	63	33.9	5,288	22.9
2019	51	26.8	4,672	20.1

POLITICAL VOICE: VOTER TURNOUT
Source: UK PARLIAMENT

Table 18 presents the general election turnout as a percentage of total number of eligible voters for both Cornwall and England for the 2010, 2015 and 2017 General Elections.

Table 18: General Election turnout. Source: (UK PARLIAMENT).

GENERAL ELECTION YEAR	% GENERAL ELECTION TURNOUT	
	CORNWALL	ENGLAND
2010	67.5	65.5
2015	70	66
2017	73.3	69.1

POLITICAL VOICE: CIVIC INFLUENCE
Source: ONS

Table 19 displays the results of the survey question from the ONC Community Life Survey, 'To what extent people agree that they personally can influence decisions affecting their local area' for the South West and England.

Table 19: Community Life Survey: Civic influence. Source: (Cornwall Council).

% OF PEOPLE WHO AGREE THAT THEY CAN INFLUENCE DECISIONS AFFECTING THEIR LOCAL AREA		
YEAR	SOUTH WEST	ENGLAND
2016-17	27	27
2017-18	27	26
2018-19	28	25

SOCIAL NETWORKS: SENSE OF COMMUNITY
Source: CORNWALL COUNCIL

Table 20 displays the results from the Cornwall Residents' Survey, 'To what extent would you agree or disagree that people in this area pull together to improve the local area?'

Table 20: Cornwall Residents Survey: Sense of community. Source: (Cornwall Council).

PERIOD	% OF RESIDENTS WHO AGREE THAT PEOPLE PULL TOGETHER TO IMPROVE THE LOCAL AREA				
	AGREE	DISAGREE	NEITHER	NOTHING NEEDS IMPROVING	DON'T KNOW
AUTUMN 2018	67	16	15	0	2
SUMMER 2019	63	16	18	0	3
AUTUMN 2019	69	15	13	0	3

SOCIAL NETWORKS: SENSE OF ISOLATION
Source: NHS (GP PATIENT SURVEY)

Table 21 displays the results from the GP Patient Survey to the question, 'Have you experienced feelings of isolation in the last 12 months?'

Table 21: GP Patient Survey: Sense of Isolation. Source: (NHS).

YEAR	% OF GP PATIENTS IN CORNWALL WHO HAVE EXPERIENCED FEELINGS OF ISOLATION IN THE PAST 12 MONTHS			
	CORNWALL	WEIGHTED BASE	ENGLAND	WEIGHTED BASE
2018	7	7,444	7	738,489
2019	6	7,371	7	745,534
2020	7	7,220	7	715,035

WORK: PEOPLE UNWILLINGLY OUT OF WORK
Source: ONS (NOMIS)

To calculate a figure for the number of people who are 'unwillingly out of work', we added together the number of people who are 'economically inactive (aged 16-64)' with the number of people who are 'economically active (aged 16-64)' to calculate the number of people who are of 'working age.' We then added together the number of people who are 'economically inactive but who want a job (aged 16-64)' with the number of people who are job-seeking, or 'economically active and unemployed (aged 16-64)'. The total was expressed as a percentage of the working age population to indicate the percentage of people who are 'unwillingly out of work' shown in Table 22. This figure was calculated for Cornwall and England to enable a comparison with national trends.

Table 22: People who are 'unwillingly out of work.' Source: (ONS(NOMIS)).

YEAR	% OF PEOPLE WHO ARE 'UNWILLINGLY OUT OF WORK'	
	CORNWALL	ENGLAND
2018	8.6	7.76
2019	8.5	7.54

ECOLOGICAL CEILING INDICATORS

AIR POLLUTION: ANNUAL MEAN NO₂
Source: CORNWALL COUNCIL

Annual mean concentrations of NO_2 presented here in Table 23 is an average of all monitoring sites across Cornwall, encompassing roadside, kerbside and urban background sites. By averaging out the annual concentration, the figures suggest Cornwall falls below the 40μg/m₃ threshold set by the WHO. We also calculated the percentage of sites that exceeded the annual average NO_2 40μg/m₃.

Table 23: Annual mean concentration of NO_2 in Cornwall. Source: (Cornwall Council).

YEAR	ANNUAL MEAN CONCENTRATIONS OF NO₂ IN CORNWALL (μg/m₃)	% OF SITES THAT EXCEEDED ANNUAL MEAN NO₂ 40μg/m₃	NUMBER OF MONITORING SITES
2014	39.63	44.07	197
2015	33.98	25.78	128
2016	37.01	40.56	143
2017	31.29	22.02	168
2018	28.37	13.27	196

CHEMICAL POLLUTION: CHEMICAL QUALITY OF SURFACE WATERS
Source: ENVIRONMENT AGENCY

Table 24 was assembled using the catchment data downloader tool to select all monitoring sites throughout Cornwall and filtering the data by the 'chemical (overall)' classification. Waterbodies include coastal waters and rivers in this analysis, but it is possible to subset the data further to look at each individually. The EA define a 'good' status as "concentrations of priority substances and priority hazardous substances that do not exceed the environmental quality standards in the Environmental Quality Standards (EQS) Directive." (EA41, Glossary.)

Table 24: Chemical quality of surface waters in Cornwall. Source: (Environment Agency).

YEAR	STATUS		TOTAL OBSERVATIONS	% OF WATERBODIES TO FAIL TO ACHIEVE GOOD CHEMICAL QUALITY
	FAIL	GOOD		
2009	4	8	12	33%
2010	5	8	13	38%
2011	5	8	13	39%
2012	5	12	17	29%
2013	19	107	126	15%
2014	23	106	129	18%
2015	17	89	106	16%
2016	17	89	106	16%

CLIMATE CHANGE: GREEN HOUSE GAS EMISSIONS
Source: UNIVERSITY OF EXETER, DBEIS

There are two datasets available for reporting Green House Gas emissions in Cornwall. Table 25 is from the Greenhouse Gas Inventory conducted by the University of Exeter for Cornwall Council to monitor progress towards net zero carbon emissions. The CO₂e is a CO2 equivalent calculated from the global warming potential (GWP) of carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF6), in accordance with the Kyoto Protocol. The emissions sources used in the analysis are from the sectors: stationary energy, transportation, waste, industrial processes and product use, agriculture, forestry and land use and other indirect emissions.

We chose to report additionally on annual CO_2 emissions, displayed in Table 26 to make it possible to directly compare emissions with local authorities and England. The data encompasses industrial and commercial, domestic and transport sources of emissions.

Table 25: Total territorial greenhouse gas emissions from Cornwall and Isles of Scilly. Source: (University of Exeter).

	TOTAL tCO2E		
YEAR	CORNWALL	ISLES OF SCILLY	CORNWALL AND ISLES OF SCILLY
2008	4,994,228	15,508	5,009,737
2009	4,774,545	15,435	4,789,980
2010	4,876,755	15,678	4,892,433
2011	4,590,464	15,018	4,605,482
2012	4,686,178	16,707	4,702,885
2013	4,586,417	15,654	4,602,071
2014	4,483,497	14,745	4,498,241
2015	4,286,238	14,505	4,300,744
2016	4,093,986	13,203	4,107,188
2017	4,019,134	12,136	4,031,269

Table 26: Total territorial CO2 emissions from Cornwall, Isles of Scilly and England. Source: (DBEIS).

	TOTAL kt CO2			
YEAR	CORNWALL	ISLES OF SCILLY	CORNWALL AND ISLES OF SCILLY	ENGLAND
2005	4105	15	4120	429,976
2006	4080	14	4095	428,012
2007	3955	15	3970	418,172
2008	3818	14	3833	407,366
2009	3550	13	3564	367,680
2010	3698	13	3712	380,323
2011	3371	13	3384	348,226
2012	3454	14	3468	366,121
2013	3357	13	3369	357,007
2014	3102	12	3114	321,882
2015	2958	11	2969	313,734
2016	2832	10	2842	295,686
2017	2768	9	2777	284,921

OCEAN HEALTH: SUSTAINABLY HARVESTED FISH STOCKS
Source: OHI

The assessment of fisheries sustainability followed the methodology of the Ocean Health Index (OHI+) for Southwest England [93]. The proportion of catch from sustainably fished species (Table 27) was calculated using B/BMSY, sourced from European and global assessments where B is the biomass of all fish for one species and BMSY is the biomass that enables the fish stock for that species to deliver maximum sustainable yield (MSY). Where B/BMSY values were missing the data was gap filled by calculating a sustainability ranking from the Marine Conservation Society's Good Fish Guide (GFG). For landings not reported to species level or those did not have a B/BMSY or GFG score, data were gap filled based on similar species. Each stock was classified as 'sustainably fished' (B/BMSY: >= 0.95 or GFG: 'best choice', 'good choice' or 'ok') or 'over-fished' (B/BMSY < 0.95 or GFG: 'avoid').

The percentage of species/taxonomic groups harvested sustainably represents the proportion of species (or taxonomic groups if landings data were not recorded at species level) fished in the region that were classified as 'under-fished' or 'recommended'.

Table 27: Proportion of catch from sustainable fish species in Cornwall and Isles of Scilly. Source: (OHI).

YEAR	PROPORTION (%) OF CATCH FROM OVER-FISHED/NOT RECOMMENDED SPECIES		PROPORTION (%) OF CATCH FROM UNDER-FISHED/ RECOMMENDED SPECIES		% OF SPECIES/TAXONOMIC GROUPS HARVESTED SUSTAINABLY	
	Cornwall	Isles of Scilly	Cornwall	Isles of Scilly	Cornwall	Isles of Scilly
2014	63%	81%	37%	19%	51%	61%
2015	60%	85%	40%	15%	51%	61%
2016	65%	86%	35%	13%	51%	61%
2017	65%	72%	35%	28%	46%	57%
2018	72%	77%	28%	23%	43%	54%

OCEAN HEALTH: BATHING WATER QUALITY

Source: Environment Agency

Table 28 shows the percentage of coastal waters rated excellent across Cornwall. The EA ratings for are based on the presence of the bacteria Escherichia coli (EC) and Intestinal enterococci (IE), measured in Colony Forming Units (cfu). The ratings are as follows:

- **Excellent**: EC: ≤250 cfu/100ml; IE: ≤100 cfu/100ml (95th percentile).
- **Good:** EC: ≤500 cfu/100ml; IE: ≤200 cfu/100ml (95th percentile).
- **Sufficient:** EC: ≤500 cfu/100ml; IE: ≤185 cfu/100ml (90th percentile).
- **Poor:** values are worse than the sufficient value.

Table 28: Bathing water quality in Cornwall. Source: (Environment Agency).

YEAR	NUMBER OF SITES MONITORED	% RATED 'EXCELLENT' QUALITY BY EA
1988	67	0
1989	67	0
1990	67	0
1991	67	0
1992	68	0
1993	68	0
1994	68	0
1995	68	0
1996	72	0
1997	72	0
1998	75	0
1999	75	0
2000	75	0
2001	75	0
2002	76	0
2003	76	0
2004	154	38
2005	154	38
2006	154	38
2007	154	38
2008	154	38
2009	154	38
2010	154	39
2011	154	37

2012	158	34
2013	158	37
2014	158	40
2015	78	82
2016	78	86
2017	78	78
2018	86	80
2019	86	85

SOIL AND WATERWAY HEALTH: ECOLOGICAL QUALITY OF SURFACE WATERS
Source: ENVIRONMENT AGENCY

As with the Chemical Pollution domain, the percentage of water bodies to fail to achieve good ecological status (Table 29) was sourced from the EA catchment data explorer. We selected all sites across Cornwall and limited the data to only include the 'ecological (overall)' classification. We further subset the data to only include measures related to phosphorous and nitrogen pollution, which are: Biochemical Oxygen Demand (BOD), Dissolved Inorganic Nitrogen, Dissolved Oxygen, Phosphate and Total Phosphorus.

Table 29: Status of water bodies for nitrogen and phosphorus quality. Source: (Environment Agency).

YEAR	STATUS					TOTAL OBSERVATIONS	% WATER BODIES TO FAIL TO ACHIEVE GOOD STATUS
	HIGH	**GOOD**	**MODERATE**	**POOR**	**BAD**		
2009	124	15	9	6	1	155	10%
2010	127	7	10	6	1	151	11%
2011	130	7	9	6	1	153	11%
2012	154	19	12	9	0	194	11%
2013	241	43	20	22	0	326	13%
2014	297	65	27	23	0	412	12%
2015	155	42	18	11	0	226	13%
2016	152	38	19	9	0	218	13%

WASTE: HOUSEHOLD WATE DISPOSAL
Source: DEFRA

Table 30 displays the total household and street waste collected by local authority and can be directly compared to England and other local authorities.

Table 30: Collected waste statistics for Cornwall, the Isles of Scilly, and England. Source: (Defra).

YEAR	AREA	% LANDFILLED	% INCINERATION WITH ENERGY FROM WASTE	% INCINERATION WITHOUT EFW	% RECYCLED & COMPOSTED	% OTHER	TOTAL WASTE (THOUSAND TONNES)
2014-15	**CORNWALL**	63	0	5	36	0	268
	IOS	29	0	54	18	0	3
	ENGLAND	25	30	0.10	43	2	25,816
2015-16	**CORNWALL**	66	0	4	34	0	263
	IOS	67	0	0	33	0	2
	ENGLAND	20	35	1	42	3	26,124
2016-17	**CORNWALL**	65	0	4	35	0	268
	IOS	81	0	0	19	0	2

	ENGLAND	16	38	1	43	3	26,319
2017-18	**CORNWALL**	11	53	3	36	0	268
	IOS	79	0	0	21	0	2
	ENGLAND	13	42	1	42	3	25,626
2018-19	**CORNWALL**	5	56	3	39	0	267
	IOS	7	66	0	27	0	2
	ENGLAND	11	43	1	43	3	25,586

WATER RESOURCES: SUPPLY-DEMAND OF FRESHWATER

Source: ENVIRONMENT AGENCY

Table 31 contains the supply demand balance for the Water Resource Zone (WRZ) Colliford, which covers most of Cornwall, with the exception of the North East. Distribution input is defined by SWW as "The amount of water entering the distribution system at the point of production. This is the quantity usually measured as demand by customers." Water Available for Use is calculated by the deduction of temporary 'allowable outages' from deployable output, which is constrained by factors such as the environment, licence agreements, water quality and treatment of allowable outages in a resource zone [109]. To calculate the supply-demand balance we subtracted the distribution input from the total water available for use. A value above 0 Mega litres per day (Ml/d) indicates that there is a surplus in supply. The table contains two forecasts, a baseline scenario and a final planning scenario that encompasses climate change adaptions.

Table 31: Balance between supply and demand of freshwater resources in Cornwall since 2017 with predictions from 2020 to 2045. Source: (Environment Agency).

YEAR	BASELINE SUPPLY DEMAND BALANCE (ML/D)			FINAL PLANNING WATER SUPPLY DEMAND BALANCE (ML/D)		
	DISTRIBUTION INPUT (DEMAND)	TOTAL WATER AVAILABLE FOR USE (SUPPLY)	SUPPLY-DEMAND BALANCE	DISTRIBUTION INPUT (DEMAND)	TOTAL WATER AVAILABLE FOR USE (SUPPLY)	SUPPLY-DEMAND BALANCE
2017-18	149.97	166.2	16.23	149.97	166.2	16.23
2018-19	147.26	166.06	18.8	147.26	166.06	18.8
2019-20	146.7	165.93	19.23	146.7	165.93	19.23
2020-21	145.96	165.79	19.83	144.06	165.79	21.73
2021-22	144.96	165.66	20.7	140.73	165.66	24.93
2022-23	145.04	165.53	20.49	139.9	165.53	25.63
2023-24	144.16	165.39	21.23	138.06	165.39	27.33
2024-25	144.53	165.26	20.73	135.68	165.26	29.58
2025-26	144.18	165.12	20.94	135	165.12	30.12
2026-27	143.98	164.99	21.01	134.75	164.99	30.24
2027-28	144.1	164.86	20.76	134.82	164.86	30.04
2028-29	144.45	164.72	20.27	135.07	164.72	29.65
2029-30	144.23	164.59	20.36	134.86	164.59	29.73
2030-31	144.18	164.45	20.27	134.77	164.45	29.68
2031-32	144.7	164.41	19.71	135.15	164.41	29.26
2032-33	145.33	164.36	19.03	135.66	164.36	28.7
2033-34	146.05	164.32	18.27	136.23	164.32	28.09
2034-35	146.18	164.27	18.09	136.31	164.27	27.96
2035-36	145.97	164.22	18.25	136.11	164.22	28.11
2036-37	146.42	164.18	17.76	136.44	164.18	27.74

2037-38	146.59	164.13	17.54	136.53	164.13	27.6
2038-39	147	164.08	17.08	136.82	164.08	27.26
2039-40	147.25	164.04	16.79	136.98	164.04	27.06
2040-41	147.72	163.99	16.27	137.31	163.99	26.68
2041-42	147.88	163.95	16.07	137.38	163.95	26.57
2042-43	148.46	163.9	15.44	137.81	163.9	26.09
2043-44	149.03	163.85	14.82	138.23	163.85	25.62
2044-45	149.23	163.81	14.58	138.36	163.81	25.45

ABBREVIATIONS AND GLOSSARY

AONB	Area of Outstanding Natural Beauty
AURN	Automatic Urban and Rural Network
BAME	Black, Asian, and minority ethnics
CIFCA	Cornwall Inshore Fisheries and Conservation Authority
CIoS	Cornwall and the Isles of Scilly
COP	Conference of Parties
DBEIS	Department for Business, Energy & Industrial Strategy
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
FAO	Food and Agriculture Organization of the United Nations
GHGs	greenhouse gases
GQA	General Quality Assessment Scheme
HLE	Healthy Life Expectancy
IOS	Isles of Scilly
KPI	key performance indicators
KtCO2e	kilotons of CO_2 equivalent
MHCLG	Ministry of Housing, Communities & Local Government
MMO	Marine Management Organisation
MSF	most similar family
MtCO2e	metric tons of CO_2 equivalent
NEA	National Energy Action
NERC	Natural Environment Research Council
NHT	National Highways and Transport Network
NO$_2$	nitrogen dioxide
ONS	Office for National Statistics
PM$_{2.5}$	fine particulate matter
PM$_{10}$	particulate matter
RLW	Real Living Wage
SDGs	Sustainable Development Goals
SRC	Stockholm Resilience Centre
SSSI	Sites of Special Scientific Interest
UDHR	Universal Declaration of Human Rights
UN	United Nations
UNEP	United Nations Environment Programme
USO	Universal Service Obligation
WFD	Water Framework Directive
WHO	World Health Organization

APPENDICES

Table 32: List of datasets used in this report.

	DOMAIN	DATASET	SOURCE	OWNER	SPATIAL	FREQUENCY	TEMPORAL
SOCIAL FOUNDATION	**Connectivity**	Internet access (non-users)	[12]	ONS	Cornwall & IoS Combined, England	Annual	2012-19
		Ease of access to essential services	[14]	National Highways and Transport Network	Cornwall, NHT Average	Annual	2019
	Safety	'Violence with injury'	[16]	ONS	Cornwall MSF, England*	Quarterly	2015-20
		Perceived level of safety	[17]	Cornwall Council	Cornwall, England*	Bi-annual	Nov 2018 – Nov 2019
	Education	GCSE attainment	[17]	Cornwall Council	Cornwall	Annual	17 June 2020
		'Gap' in attainment between disadvantaged and non-disadvantaged young people	[17]	Cornwall Council	Cornwall	Annual	17 June 2020
	Equality	Gender pay gap	[25]	ONS	Cornwall, England*	Annual	1997-2019
		BAME stop and search	[28]	Devon and Cornwall Police	Cornwall & IoS combined	Annual	2019-20
	Food	Food bank usage	[34]	The Trussell Trust	Cornwall, England*	Annual	2017-19
	Fuel poverty	Fuel poverty	[40]	DBEIS	Cornwall, IoS, England*	Annual	2011-18
	Health	Healthy life expectancy (HLE)	[45]	ONS	Cornwall, England*	Biennial	2014-18
		Economic activity due to health conditions or long-term illness	[46]	ONS (NOMIS)	Cornwall, England*	Annual	2019-20
	Housing	Homelessness assessments	[49]	MHCLG	Cornwall, IoS, England*	Quarterly	Apr-Jun 2018, Oct-Dec 2019
		Rough sleeping	[53]	MHCLG	Cornwall, IoS, England*	Annual	2011-19
	Income	Employee jobs with an hourly pay below the Real Living Wage	[57]	ONS (ASHE)	Cornwall, England*	Annual	2018-19
	Political Voice	Voter turnout	[59]	UK Parliament	Cornwall, England*	Election cycle	2010-17
		Civic influence	[60]	ONS (NOMIS)	Cornwall, England*	Annual	2016-18
	Social networks	Sense of community	[17]	Cornwall Council	Cornwall	Election cycle	2010-17
		Sense of isolation	[79]	GP Patient Survey	Cornwall, England*	Annual	2016-18
	Work	People unwillingly out of work	[82]	ONS (NOMIS)	Cornwall, England*	Annual	2014-18

	DOMAIN	DATASET	SOURCE	OWNER	SPATIAL	FREQUENCY	TEMPORAL
ENVIRONMENTAL CEILING	Air pollution	Annual concentrations NO_2	[70]	Cornwall Council	Cornwall, England**	Annual	2014-18
	Biodiversity	Biodiversity trends	Not yet published	Cornwall Wildlife Trust/University of Exeter	Cornwall	To be confirmed	To be confirmed
		Progress towards Aichi targets	[74]	Cornwall Council	Cornwall	One-off assessment	One-off assessment
	Chemical pollution	Chemical quality of waterbodies	[83]	Environment Agency	Cornwall, England***	Annual	2009-16
	Climate change	Territorial CO2e emissions	[87]	Centre for Energy and the Environment, University of Exeter	Cornwall & IoS	Annual	2008-17
		CO_2 emissions	[93]	DBEIS	Cornwall, IoS, England	Annual	2005-17
	Land use change	Land cover	Not yet published	ERCCIS	To be confirmed	To be confirmed	To be confirmed
		Land use for environmental growth	Not yet published	Contact Professor Kevin Gaston, University of Exeter: K.J.Gaston@exeter.ac.uk	Cornwall	To be confirmed	To be confirmed
	Ocean health	Fish stocks harvested sustainably by UK vessels	[99]	Contact Dr Matt Witt, South West Ocean Health Index: M.J.Witt@exeter.ac.uk	Cornwall & IoS	Annual	2014-18
		Bathing water quality	[103]	Environment Agency	Cornwall, England*	Annual	1988-2017
	Soil and waterway health	Ecological quality of water	[78]	Environment Agency	Cornwall, England***	Annual	2009-16
	Waste	Household waste disposal	[110]	DEFRA	Cornwall, IoS, England*	Annual	2014-19
	Freshwater Resources	Supply-Demand balance of freshwater	[111]	Environment Agency. Contact Rob Scarrott, SWW: rscarrot@southwestwater.co.uk	Cornwall & IoS	Annual	2017-2019 & forecast for 2020-45

* Directly comparable to England's data

** Not directly comparable as Cornwall data is from individual monitoring sites, whereas the UK data combines this into 'All sites.'

*** Data is available to compare monitoring sites across the UK but is not available in one dataset for England.

Table 33: List of datasets that were investigated but not included.

	DOMAIN	SOURCE	NAME	OWNER	SPATIAL	FREQUENCY	TEMPORAL	REASON FOR OMISSION
SOCIAL FOUNDATION	Connectivity (Internet)	[112]	% of premises unable to receive 30mbit/s	Ofcom	Cornwall, IoS & England*	Annual	2016-20	Reflects internet speed rather than access. It also does not consider the social barriers to connectivity, rather it reflects the structural barriers.
		[113]	Challenges accessing services online	Cornwall Council	Cornwall & IoS	Once	2017	Only available for 2017.
	Connectivity (Transport)	[114]	Customer satisfaction with public transport	Transport Focus	Cornwall & England*	Annual	2016-19	Reflects satisfaction across a range of domains, does not reflect how public transport affects access to key services.
		[115]	Minimum journey times to key services	DfT	Cornwall, IoS & England*	Annual	2014-17	The mean value is expected to be higher for Cornwall due to it being a rural area. Only reflects minimum travel times.
	Education	[116]	No qualifications or level 1 qualifications	Nomis	Cornwall, England*	Annual	2014-19	Indicator of population characteristics but may not reflect current education system or outcomes.
		[117]	School readiness	DfE	Cornwall & England*	Annual	2012-15	An important predictor of attainment but actual attainment data used instead.
		[118]	Achievement of 17 Early Learning Goals by end of Early Years Foundation Stage	DfE	Cornwall, IoS & England*	Annual	2009-19	As above.
	Equality	[119]	Hate crime	Devon and Cornwall Police	Cornwall & England*	Annual	2017-19	A large proportion of hate crimes go unrecorded, data could be misleading.
	Food	[120]	5-a-day	Public Health England	Cornwall, IoS & England*	Annual	2015-2017	An important indicator of whether diet is nutritionally adequate, but does not reflect underlying causes.
		[118]	Food security status	Food standards agency	England only	Biennial	2016,18	Data from the Food and You Survey were unavailable at a local authority level. Food security question can be found in

							NatCen Social Research, Food Standards Agency WAVE 4 - Shopping, cooking and eating.
	[121]	Children in year 6 who are underweight	NHS digital	Cornwall & England*	Annual	2010-2018	% of underweight children could be caused by a number of reasons unrelated to food insecurity, such as other health issues.
Health	[122]	Self-reported anxiety	ONS	Cornwall & England*	Annual	2011-18	Only provides a 'snapshot' of respondent's anxiety levels on one day.
	[61]	Reported mental health issue	NHS	Cornwall & England*	Annual	2007-20	Does not capture the impact of people's wellbeing on their ability to live a 'positive and active life.'
	[121]	NHS Quality Outcomes Framework Data	NHS Digital	Cornwall & England*	Annual	2004-19	Captures diagnosed mental health conditions. Does not reflect the impact of people's wellbeing on their ability to live a 'positive and active life.'
	[123]	To what extent do you agree or disagree that the Council is making the area greener?	Cornwall Council	Cornwall	Annual	2018-19	Considered to capture the impact of access to outdoor environments on wellbeing, but available data represent a tenuous link.
	[124]	How satisfied or dissatisfied are you with parks and open spaces?	Cornwall Council	Cornwall	Annual	2018-19	Considered to capture the impact of access to outdoor environments on wellbeing, but available data represent a tenuous link.
Housing	[125]	Ratio of house price to workplace-based earnings in the lower quartile	MHCLG	Cornwall, England*	Annual	1996-2019	Excludes the rental market and assumes all people are buyers.
	[126]	Number of affordable homes being built in Cornwall	Cornwall Council	Cornwall	One-off report	2018	Assesses provision only; does not capture those on a waiting list who are in temporary/insecure accommodation. A one-off report means it would not be possible to track changes over time.

	DOMAIN	SOURCE	NAME	OWNER	SPATIAL	FREQUENCY	TEMPORAL	REASON FOR OMISSION
		[127]	Number of people living in temporary accommodation	Cornwall Council	Cornwall	One-off report	2003-19	Does not capture owner occupiers or people in rented accommodation who feel threatened with homelessness and therefore lack housing security.
	Income and work	[128]	Median household income	PLUMPLOT	Cornwall & England*	Annual	2016-18	Does not reflect lowest earners' income which is more relevant when considering income inequality.
		[129]	Annual Full Time Earnings of lowest 20% of workers	ONS	Cornwall & England*	Annual	2016-19	Data don't reflect income in relation to living costs.
		[130]	Median Gross Earnings - top and bottom percentiles	HMRC	Cornwall & England*	Annual	2016-19	Data don't reflect income in relation to living costs.
	Social networks	[131]	Has visited a heritage site in the last 12 months	DCMS	South West	Quarterly	2006-19	Considered based on inclusion of heritage in decision-making wheel, but not directly relevant to this domain.
	Political voice	[132]	Turnout for parish council elections	Cornwall Council	Cornwall	Annual	2014-20	Not all data are available annually as different wards have elections in different years.
		[133]	Neighbourhood Planning Referendum results	Cornwall Council	Cornwall	Annual	2000-19	Neighbourhood planning referendums occur at different times and only represent a snapshot of the population.
		[74]	Local government electoral registrations	ONS	Cornwall, IoS, England*	Annual	2000-19	Could not find number of eligible candidates who are not registered to compare with this data.
	DOMAIN	**SOURCE**	**NAME**	**OWNER**	**SPATIAL**	**FREQUENCY**	**TEMPORAL**	**REASON FOR OMISSION**
ENVIRONMENTAL CEILING	Air pollution	[134]	Annual concentrations of pm10	Cornwall council	Cornwall, England*	Annual	2014-18	Limited coverage of Cornwall, data only available for one AURN monitoring site in Saltash and 6 roadside monitoring sites.
	Biodiversity loss	[134]	Aichi targets	Cornwall council	Cornwall, England*	One-off report	2016	More up to date data is available
	Land use change	[135]	Ecosystem health	Natural England	Cornwall, IoS, England*	Irregular	2009-2017	Describes condition of protected land rather than land use change.

	Ocean health	[136]	Marine ecosystem health	Natural England	Cornwall, IoS, England*	Irregular	2009-2017	Assessments are very intermittent; some have not been assessed in 10 years.
	Waste	Data request to Cornwall Council	Recycling rates	Cornwall Council (Alex Rainbow: alex.rainbow@cornwall.gov.uk)	Cornwall	Annual	2016-18	Improved recycling rates does not necessarily be indicative of an improved waste system, as the total mass of waste may have increased.
	Renewable energy	[136]	Electricity consumption	DBEIS	Cornwall, IoS, England*	Annual	2005-18	Renewable energy was not included as a domain as it is a *driver* rather than a *state* and is encompassed within the climate change domain.
		[136]	Renewable electricity	DBEIS	Cornwall, IoS, England*	Annual	2004-18	

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