The Forest of Dean Biosphere

Prosperity Indicators

Research and Recommendation Paper

April • 2026

This document is a research and recommendation paper outlining the Forest of Dean's prosperity indicators.

The prosperity indicators presented in this document are intended to operate as a place-based evidential framework for a Forest of Dean District UNESCO Biosphere. They are designed to demonstrate how the Forest of Dean District sustains cultural continuity, economic viability and environmental stewardship simultaneously, and how these dynamics contribute to long-term resilience. Furthermore, the indicators can be used to provide solid evidence base as the biosphere proceeds. The individual prosperity indicators can be found in an additional document. (Nomination under development).

Further information and regular updates are provided through the biosphere webpages

Forest of Dean's UNESCO Biosphere Bid - Forest of Dean District Council

Household Prosperity & In-Work Poverty

Expanded Prosperity Indicator for the Forest of Dean District UNESCO Biosphere Bid

Introduction

This indicator assesses whether the Forest of Dean's economy **delivers basic household security and dignity** so that people who live and work in the district can meet essential costs, live in warm and decent homes and sustain stable lives without persistent precarity.

It treats household prosperity as a *place-shaped outcome*, not only an income figure. In the Forest of Dean, the conditions that create (or undermine) household security are strongly influenced by dispersed settlement patterns; distance and transport dependency; older housing stock and energy performance; and the way value is captured (or leaks) from a working landscape economy. These are not peripheral issues but structural features of how "what's special" about the Forest has historically interwoven landscape, communities, industry, trade and transport.

This indicator is further grounded in nationally recognised deprivation evidence. The Index of Multiple Deprivation (IMD) 2025 highlights that, while the Forest of Dean does not rank among the most deprived districts overall, **distinct neighbourhoods experience persistent and overlapping disadvantage**, particularly across income, employment, health, housing, access and living environment domains. These patterns reinforce the need to assess prosperity through household conditions and lived experience, rather than district averages alone. IMD therefore provides a critical spatial lens for understanding where and how household prosperity pressures concentrate within the Forest, and why a place-based governance framework such as a biosphere is appropriate.

In a UNESCO Biosphere context, this indicator demonstrates that designation is not only about protecting nature for its own sake, but about ensuring that the Forest remains a **living, working landscape** where people and nature thrive together, measured through whether household conditions improve over time.

Income Adequacy, Low Pay and In-Work Poverty

What is measured

A 'basket' of measures that capture whether work translates into secure household prosperity:

- Median household disposable income (where available at district level)
- Median gross pay and pay distribution (including low-pay thresholds)
- Proportion earning below the Real Living Wage (where feasible locally)
- In-work poverty rate (or best-available local proxy where direct estimates are unavailable)

- Underemployment and insecurity proxies (e.g., involuntary part-time, income volatility indicators)

Place-specific detail

The Forest can exhibit **strong performance in some measures of economic output** while still producing "just about managing" household conditions because household prosperity is shaped by **pay levels, stability, and costs**, not output alone. This is consistent with the economic case framing for a Forest biosphere: the bid must evidence how prosperity is experienced locally, not simply what the economy produces in aggregate.

IMD 2025 evidence demonstrates that **in-work poverty and income insecurity are spatially concentrated** within particular Forest communities, often overlapping with lower access to services, higher transport dependency and poorer housing quality. This confirms that low pay and household stress in the Forest are not evenly distributed, and that some communities experience compound disadvantage despite overall employment. Using IMD alongside earnings data allows the biosphere to track whether interventions are reaching those places where household prosperity is most fragile.

Nomis/ONS earnings series provide a repeatable baseline to track pay and low-pay thresholds over time at local authority scale.

Fuel Poverty and Energy Cost Burden

What is measured

- Fuel poverty rate and trend
- Energy cost burden (where feasible: energy costs as a share of household resources)
- Exposure to "hard-to-treat" housing (EPC distribution; older stock proxies)
- Off-gas-grid exposure / heating fuel mix (where available through local and national datasets)
- Demand-side signals: uptake and referrals into support/retrofit services

Place-specific detail

Fuel poverty is a core Forest household-prosperity pressure because it is produced by the interaction of **housing condition/energy systems/rural costs**.

A historic Forest baseline (Gloucestershire "Understanding Forest of Dean" profile using DECC fuel poverty statistics) reported **4,181 households (11.6%)** in fuel poverty in 2013. More recent estimates continue to indicate elevated pressure (methodologies vary): National Energy Action's constituency profile estimates **15.6%** of Forest of Dean households in fuel poverty.

Operationally, the Council's **Warm and Well** service recorded higher demand during the cost-of-living period, including **25% more households supported in 2022/23** compared with the previous year. This demonstrates an on-the-ground signal of household strain and service necessity.

This matters to the biosphere proposition because warm homes, energy efficiency and household resilience are **not separate from sustainability**: they sit precisely at the intersection of fundamental social wellbeing needs and environmental limits.

Cost Pressures: Transport, Access and the "Rural Premium"

What is measured

- Transport costs as a proportion of income (where feasible via modelled data/proxies)
- Household access to services proxies (distance/time to essentials; service availability indices)
- Car dependency and household mobility vulnerability (Census 2021 / local datasets)
- Digital access and reliability (where used as an access-to-opportunity proxy)

Place-specific detail

The Forest's settlement pattern and connectivity realities mean many households face a structural "rural premium" in day-to-day costs. The "What's Special" baseline work explicitly frames the Forest as a distinctive mixture of landscape, community and economic life, including transport patterns and the working geography of the district, so household costs must be understood as shaped by place, not only personal choices.

Household Resilience and Housing-Linked Vulnerability

What is measured

- Housing affordability pressure (cost-to-income indicators where available)
- Housing quality proxies: EPC distribution, damp/condition proxies where available
- Overcrowding and concealed households (Census 2021)
- Homelessness and temporary accommodation indicators (local authority datasets)

Place-specific detail

The Council's Sustainable Economy Strategy explicitly recognises that economic outcomes must be assessed against real-world constraints and pressures; and it highlights the importance of baseline evidence, trend identification and accountability for whether interventions actually shift outcomes. That approach is directly aligned with using household prosperity indicators as a biosphere governance tool. The Strategy also flags risks that can intensify housing pressure (e.g., the relationship between tourism promotion and second-home/holiday use displacing local availability).

The IMD Barriers to Housing and Services domain is particularly relevant to the Forest of Dean because it directly measures the **structural effects of distance, settlement pattern and service accessibility on everyday life**, rather than treating these as neutral geographic characteristics. The domain incorporates indicators such as distance to key services (including primary schools, GP surgeries and food shops), housing affordability pressures and overcrowding. In rural and semi-rural districts like the Forest of Dean, these indicators

systematically capture the **additional time, cost and dependency burdens** that households face as a result of dispersed settlements, limited public transport and service centralisation.

IMD 2025 therefore shows that access pressures are not marginal or incidental in the Forest, but **material contributors to relative deprivation in specific neighbourhoods**, even where employment rates or average incomes may appear reasonable. This demonstrates that household prosperity in the Forest is shaped not only by earnings, but by whether people can access services, housing and opportunities without incurring disproportionate costs. The evidence supports the biosphere's framing of access, mobility and local provision as sustainability issues: improving household wellbeing in a working landscape requires reducing structural access burdens, not simply increasing economic activity.

Case Studies Illustrating Delivery

Warm homes and household resilience: Warm and Well

Warm and Well provides a practical delivery mechanism that connects household prosperity, health, and low-carbon transition. Increased service reach during the cost-of-living period indicates both need and the feasibility of scaling delivery if governance and funding alignment are strengthened through biosphere designation.

Household prosperity as a "working landscape" outcome

The Forest's long-standing approach to protecting what its inherent character while meeting social and economic needs is embedded in the Biosphere logic: using baseline evidence to manage a living landscape for residents' benefit, not simply conservation for visitors. Household prosperity indicators extend that proven Forest practice into an accountable biosphere framework.

Monitoring and Evidence Base

This indicator draws on existing datasets and practice, including (non-exhaustive):

- Inform Gloucestershire (integrating backbone for district and small-area trends)
- Census 2021 (household composition, tenure, mobility vulnerability, concealed households)
- Nomis/ONS earnings datasets (pay levels and distribution)
- Government/LG Inform fuel poverty series (trend baselines)
- Local authority administrative datasets (Council Tax Support, homelessness indicators, programme uptake)
- Warm and Well operational reporting and referral patterns

The emphasis is on **repeatable indicators first**, triangulating where direct "in-work poverty" measures are not available at district scale, and ensuring that monitoring is sustainable over time (trends, distribution, and leading indicators, not one-off studies).

UNESCO Bid Relevance

This indicator demonstrates continuity, capability and credibility. It shows that the Forest of Dean:

- understands household prosperity as a **place-shaped outcome**, not a generic metric;
- recognises that sustainability must integrate social and economic realities as well as environmental stewardship (a core biosphere expectation);
- can monitor progress using existing data sources and delivery mechanisms, strengthening accountability and adaptive management.

Designation therefore strengthens and coordinates existing practice rather than inventing a new social policy agenda, aligning with UNESCO expectations around **demonstrating local conditions, resident benefit and the ability to learn and adapt**.

Application of Doughnut Economics

This indicator applies Doughnut Economics by explicitly managing prosperity within two interdependent boundaries: the **social foundation** (people can meet essential needs and live with dignity) and the **ecological ceiling** (meeting those needs without locking households into high-carbon, resource-intensive systems). In the Forest of Dean, the social foundation is expressed through whether employment produces secure household conditions (warmth, housing stability, manageable costs and financial resilience), while the ecological ceiling is expressed through whether those conditions can be improved through lower-carbon infrastructure and stewardship-aligned local systems, rather than through higher consumption and extractive growth. The indicator therefore treats household wellbeing and climate/energy transition as a single joined-up question, not separate policy silos.

By linking fuel poverty, housing energy performance, and cost-of-living pressures to practical interventions (retrofit, warm homes delivery, local supply chains and reduced travel demand), the indicator distinguishes **regenerative prosperity**, i.e. activity that lowers household costs and risk while reducing environmental pressure, from **extractive prosperity**, where economic output can rise while households remain insecure and emissions and resource burdens increase. In this way, Doughnut Economics functions as a governance test, asking *does action move Forest households closer to a safe and just operating space, or does it increase pressure without improving lived outcomes?* That framing also supports clear accountability in a biosphere context, because progress can be tracked through real household conditions rather than branding or visitor growth alone.

Annex

Annex 1: Data Sets

1. Pay, employment and income adequacy
Primary sources

- Nomis / ONS earnings series (local authority)
- Census 2021 (household structure; mobility proxies)
- Inform Gloucestershire (labour-market and household dashboards where available)

What these support

- Tracking pay adequacy and low-pay prevalence
- Baseline and trends in household vulnerability

2. Fuel poverty and housing energy
Primary sources

- Government / LG Inform fuel poverty datasets
- Historic benchmark profiling (Understanding Forest of Dean)
- EPC band distributions (where accessed via national summaries/local extracts)

Delivery datasets

- Warm and Well reporting (reach, measures delivered, referrals, repeat demand)

What these support

- Tracking energy-cost burden and structural risk
- Linking intervention scale to household outcomes

3. Housing security and affordability
Primary sources

- Local authority housing and homelessness indicators
- Census 2021 tenure/overcrowding proxies

What these support

- Monitoring stability and risk
- Identifying pressure points and distributional impacts

4. Cost and access pressures
Primary sources

- Inform Gloucestershire spatial indicators
- Transport/access indices where available locally

What these support

- Measuring the “rural premium” on households
- Identifying where access/cost barriers are most acute

5. Monitoring approach and governance

Principles (mirroring the Natural Capital indicator approach)

- Use existing data first; fill gaps proportionately
- Prefer repeatable trend measures over one-off precision
- Focus on distribution (who/where), not only averages
- Treat delivery datasets (e.g., warm homes referrals) as leading indicators of stress and progress

Annex 2

Mapping the Household Prosperity & In-Work Poverty Indicator to MAB Zones

Indicator component	**Core areas**	**Buffer zones**	**Transition areas**
Income adequacy & in-work poverty	Limited direct residential footprint; indirect through land-use decisions and access constraints	Indirect: livelihoods and services that support resident incomes (e.g., land-based work, visitor economy linkages)	Primary: household outcomes are experienced in settlements, towns and dispersed communities
Fuel poverty & energy cost burden	Indirect: constraints and design standards near sensitive assets shape appropriate retrofit/heat solutions	Delivery potential for rural retrofit models and community-scale interventions	Primary: housing stock condition, off-gas-grid exposure, EPC mix, Warm and Well demand and outcomes
Cost pressures (transport/access)	Limited direct	Connectivity between settlements and service hubs influences household costs	Primary: daily travel, service access, affordability and time poverty
Governance function	Defines constraints and sensitivities that shape appropriate interventions	Tests whether delivery is compatible with living landscape character	Tests whether household prosperity is improving without increasing

Indicator component	Core areas	Buffer zones	Transition areas
			ecological pressure

Cost of Living & Access to Essentials

Expanded Prosperity Indicator for the Forest of Dean District UNESCO Biosphere bid

Introduction

This indicator assesses whether people living in the Forest of Dean can **access essential goods, services and opportunities at a cost that is reasonable, predictable and compatible with everyday life in a rural working landscape.**

It treats cost of living as a **place-shaped condition**, not simply an outcome of national prices or individual consumption choices. In the Forest of Dean, everyday costs are strongly influenced by dispersed settlement patterns; landscape character and infrastructure constraints; distance to services; transport dependency; off-gas-grid energy systems; and the relationship between a visitor economy and resident access. These factors are not incidental. They are structural features of how "what's special" about the Forest has historically interwoven landscape, communities, industry, trade and movement.

This indicator is grounded in nationally recognised deprivation evidence. The **Index of Multiple Deprivation (IMD) 2025** shows that access-related pressures are material contributors to relative deprivation in the Forest of Dean. The district contains the **most deprived Lower Super Output Area in Gloucestershire on the Barriers to Housing and Services domain**, with the Dymock LSOA ranked **91st of 33,755 LSOAs in England** on that domain. This domain captures distance to key services alongside housing access pressures, confirming that geography and service accessibility are active drivers of cost and vulnerability in parts of the Forest, rather than neutral background characteristics.

In a UNESCO Biosphere context, this indicator demonstrates that designation is not only about environmental protection, but about whether a distinctive rural landscape remains **liveable and accessible** for the people who sustain it. Cost of living is therefore treated as a core prosperity outcome, directly shaped by landscape, infrastructure and governance choices.

Transport Costs, Mobility and the "Rural Premium"

What is measured

- Transport costs and affordability proxies
- Car dependency and household mobility vulnerability (Census 2021)
- Distance and travel time to essential services (IMD access indicators; local datasets)
- Availability, coverage and reliability of public and community transport
- Travel-related time poverty (where evidenced)

Place-specific detail

Transport is one of the most significant structural cost drivers for households in the Forest of Dean. The district's settlement pattern, characterised by market towns, large villages and numerous smaller settlements embedded within a heavily wooded landscape, reflects its historic development as a working forest rather than a commuter hinterland. *What's Special*

about the Forest of Dean explicitly frames movement and trade routes within dispersed communities as integral to the Forest's identity.

However, these same characteristics generate a persistent **rural premium** in day-to-day costs. Census 2021 data show a high level of car dependency across the district, reflecting limited public transport coverage and the distance between settlements and service centres. While overall car ownership is relatively high, this masks significant vulnerability among households without reliable access to a vehicle, particularly in more remote communities.

IMD 2025 evidence demonstrates how these dynamics translate into relative deprivation. The Barriers to Housing and Services domain shows that distance to key services (including GP surgeries, primary schools and food shops) is a primary driver of deprivation in the most affected Forest communities. This confirms that access costs are not evenly distributed, but spatially concentrated where transport dependency, service distance and limited alternatives overlap.

Landscape character further shapes these costs. The Forest of Dean Landscape Character Assessment identifies narrow lanes, wooded corridors, historic settlement forms and sensitive habitats as defining features. These characteristics constrain road expansion, limit bus routing and frequency, and increase per-capita infrastructure maintenance costs. As a result, transport solutions that are routine in more urban districts are often more expensive or less viable in the Forest, reinforcing the structural nature of access costs.

This matters to the biosphere proposition because unmanaged transport dependency encourages higher household expenditure, greater exposure to fuel price volatility and increased emissions. Reducing cost of living pressures in the Forest therefore requires addressing access conditions directly, rather than assuming that households can absorb travel costs indefinitely.

Access to Essential Services and Everyday Goods

What is measured

- Distance and travel time to healthcare, education and food retail
- Availability of local versus out-of-district services
- Service consolidation and withdrawal trends
- Digital access and reliability as a service-access proxy

Place-specific detail

Access to essential services is a core determinant of cost of living in the Forest of Dean. IMD 2025 evidence shows that access pressures are a material contributor to deprivation in specific neighbourhoods, driven primarily by distance to services rather than housing affordability alone.

Service geography in the Forest has shifted over time. While historic market towns once functioned as comprehensive service hubs for surrounding communities, *What's Special about the Forest of Dean* and the Sustainable Economy Strategy both note the gradual centralisation of services outside the district. This has increased travel distances for healthcare, specialist services and certain forms of retail, transferring both financial and time costs onto residents.

Digital services provide partial mitigation, but digital access is uneven across the district. Inform Gloucestershire data indicates variability in broadband speed and reliability, particularly in more rural areas. Where digital access is weak, online substitution does not replace physical travel

but instead layers additional cost and complexity onto households, undermining assumptions about efficiency or choice.

From a biosphere perspective, access to services is not a peripheral convenience but a fundamental condition of liveability. Improving access without increasing travel demand is therefore a key sustainability challenge, linking cost of living directly to service planning, infrastructure investment and spatial governance.

Energy, Utilities and Unavoidable Household Costs

What is measured

- Off-gas-grid exposure and heating fuel mix
- Housing stock age and "hard-to-treat" prevalence
- Structural baseline energy and utility cost exposure
- Sensitivity to price volatility (excluding fuel poverty outcomes)

Place-specific detail

Energy and utility costs in the Forest of Dean are shaped by infrastructure legacy and housing condition. A higher-than-average proportion of households are off the mains gas network, relying on oil, LPG or solid fuels. These heating systems are typically more expensive per unit and subject to greater price volatility than mains gas, increasing unavoidable household costs regardless of income.

Housing stock characteristics compound these pressures. The Forest has a relatively high proportion of older properties, including pre-1919 homes, which are more difficult and costly to heat. The Landscape Character Assessment highlights the historic and vernacular nature of much of the housing stock, which contributes to the Forest's character but also constrains retrofit options and increases baseline energy demand.

These factors mean that households can face elevated energy costs even before affordability thresholds associated with fuel poverty are crossed. This indicator therefore focuses on **structural cost exposure**, distinguishing it from fuel poverty outcomes addressed under Household Prosperity.

For the biosphere bid, this matters because reducing household energy costs through efficiency and appropriate low-carbon solutions supports both social wellbeing and environmental objectives, whereas unmanaged exposure increases vulnerability and resistance to transition.

Food Access, Local Provision and Price Sensitivity

What is measured

- Physical access to food retail and fresh produce
- Reliance on travel for affordable food shopping
- Presence and resilience of local food provision
- Exposure to food price volatility where locally evidenced

Place-specific detail

Despite being a productive landscape, food access in the Forest of Dean is uneven. Some communities must travel significant distances to reach affordable food retail, increasing both financial and time costs. This reliance on travel heightens exposure to fuel price rises and transport disruption.

The Forest Economic Partnership biosphere economic case highlights the opportunity to strengthen local supply chains and retain value locally. From a cost-of-living perspective, local provision can reduce household expenditure, improve resilience and shorten supply chains, aligning affordability with stewardship-based economic activity rather than extractive models.

Visitor Economy, Seasonal Pressure and Resident Access

What is measured

- Visitor-related pressure on transport, parking and local services
- Seasonal congestion and access impacts
- Interactions between tourism, retail pricing and resident access

Place-specific detail

The Sustainable Economy Strategy recognises tourism as a key component of the Forest economy, but also flags the need to manage its impacts. Seasonal visitor flows increase pressure on roads, parking and local services, raising access costs and travel times for residents. In some locations, retail and service provision becomes oriented toward visitors rather than everyday needs, affecting price and availability.

These dynamics are directly relevant to cost of living. Where visitor demand displaces or reshapes local provision, residents incur higher costs in accessing essentials. Managing this balance is therefore a core biosphere governance issue, linking economic development, access and sustainability.

Case studies Illustrating Delivery

Local provision and everyday access: Dean Forest Food Hub

The **Dean Forest Food Hub** provides a concrete, place-based example of how cost-of-living pressures can be addressed through local provision in a dispersed rural district. The Hub operates as a community food hub, coordinating local producers, suppliers and volunteers to improve access to affordable food for residents across the Forest of Dean, particularly for households facing access, transport or income constraints.

From a cost-of-living perspective, the Food Hub reduces reliance on long-distance travel to larger retail centres by providing localised access points for food distribution, thereby lowering transport costs, time burden and exposure to fuel price volatility. Its delivery model is well-suited to the Forest's settlement pattern and landscape character, offering a flexible alternative to centralised provision that would otherwise increase travel demand and household costs.

The Food Hub aligns closely with the Forest Economic Partnership's biosphere economic case, which identifies local supply chains and community-anchored provision as mechanisms for

improving resilience and retaining value locally. As a biosphere case study, the Dean Forest Food Hub demonstrates how everyday affordability can be improved through **place-appropriate social and economic infrastructure**, strengthening food access while reinforcing local enterprise, community capacity and sustainable land-use relationships within a working forest landscape.

Community access and mobility: Forest Community Transport

Forest Community Transport provides a practical delivery example of how access-related cost-of-living pressures can be reduced in a dispersed rural district without increasing private car dependency. Operating community-led transport services across the Forest of Dean, the organisation supports residents who face barriers to accessing healthcare, shopping, social activity and essential services due to distance, limited public transport or lack of access to a private vehicle.

From a cost-of-living perspective, Forest Community Transport reduces the financial and time costs associated with compulsory car ownership and long-distance travel, particularly for older residents, disabled people and those living in smaller settlements. Its flexible, demand-responsive model is well-suited to the Forest's landscape character, accommodating narrow lanes, dispersed communities and variable demand more effectively than conventional fixed-route services.

This delivery model directly addresses the access pressures captured in the IMD Barriers to Housing and Services domain and aligns with the biosphere proposition that affordability and sustainability must be managed together. As a biosphere case study, Forest Community Transport demonstrates how place-appropriate mobility provision can lower household access costs, improve everyday liveability and reduce environmental pressure by limiting unnecessary car journeys, reinforcing the Forest's identity as a living, working landscape rather than a car-dependent periphery.

Monitoring and Evidence Base

This indicator draws on existing datasets and practice, including (non-exhaustive):

- Inform Gloucestershire (spatial access, transport, digital connectivity and service indicators)
- Census 2021 (car ownership, travel patterns, housing age proxies)
- IMD 2025 (Barriers to Housing and Services domain, LSOA level)
- Local authority transport, accessibility and service datasets
- Forest-specific baseline documents (*What's Special*, Landscape Character Assessment, Sustainable Economy Strategy)

The emphasis is on repeatable indicators, spatial distribution and trend analysis, ensuring that monitoring is sustainable over time and capable of supporting adaptive governance.

UNESCO Bid Relevance

This indicator demonstrates that the Forest of Dean:

• understands cost of living as a **place-shaped prosperity outcome**, not a generic inflationary issue;
• recognises access, infrastructure and service geography as sustainability challenges in a protected working landscape;
• can monitor whether living in the Forest is becoming more or less viable for residents using existing evidence and delivery mechanisms.

Designation therefore strengthens coordination and accountability, ensuring that affordability, access and environmental stewardship are managed together rather than in isolation.

Application of Doughnut Economics

This indicator applies Doughnut Economics by managing cost-of-living pressures within two interdependent boundaries: the social foundation (people can access essential goods, services and opportunities without disproportionate cost or time burden) and the ecological ceiling (meeting those needs without increasing emissions, resource use or landscape pressure). In the Forest of Dean, the social foundation is expressed through whether residents can reasonably access transport, energy, healthcare, education, food and everyday services despite dispersed settlements, distance to provision and infrastructure constraints. Falling below this foundation is experienced through access failure rather than income failure, with households incurring higher travel, energy and time costs as a condition of participation in daily life.

At the same time, the ecological ceiling is engaged through the ways cost-of-living pressures are addressed. In the absence of coordinated, place-based solutions, affordability is often maintained through responses that increase environmental pressure, including rising car dependency, longer travel distances to centralised services, reliance on high-carbon heating fuels and incremental infrastructure expansion that conflicts with landscape character and ecological sensitivity. These dynamics illustrate how apparent affordability can coexist with environmental overshoot, particularly in a protected working landscape such as the Forest of Dean.

By linking access, transport, energy and service geography within a single framework, this indicator distinguishes **regenerative cost reduction**, i.e. where everyday living becomes more affordable because systems are better designed, from **extractive affordability**, where costs are displaced onto households or the environment. Doughnut Economics therefore functions as a governance test, asking whether actions reduce structural access costs while reinforcing long-term social and environmental resilience, rather than easing pressure in ways that undermine the Forest's capacity to remain both liveable and sustainable.

Annex

Annex 1: Data Sets

1. Transport and access

Primary sources

- Census 2021 travel and car ownership data
- IMD 2025 Barriers to Housing and Services
- Inform Gloucestershire access indicators

What these support

- Measuring the rural premium
- Identifying spatial access vulnerability

2. Energy and utilities

Primary sources

- National gas connectivity datasets
- EPC summaries and housing age proxies

What these support

- Tracking structural energy-cost exposure

3. Services, food and visitors

Primary sources

- Local authority service mapping
- Inform Gloucestershire food and retail access indicators
- Sustainable Economy Strategy evidence

What these support

- Monitoring resident access and displacement pressures

4. Monitoring approach and governance

Principles

- Use existing data first; fill gaps proportionately
- Focus on distribution, not averages
- Track trends and leading indicators
- Treat access and affordability as sustainability outcomes

Annex 2

Mapping the Cost of Living & Access to Essentials Indicator to MAB Zones

Indicator component	**Core areas**	**Buffer zones**	**Transition areas**
Transport & access	Limited direct	Connectivity constraints and corridors	Primary: daily travel, cost and time burdens
Energy & utilities	Design constraints near sensitive assets	Retrofit and infrastructure pilots	Primary: household exposure and costs
Services & food access	Protection of sensitive sites	Local hubs and shared provision	Primary: everyday access and affordability
Governance function	Defines constraints	Tests compatibility	Tests whether access improves without overshoot

Work, Skills & Local Opportunity

Expanded Prosperity Indicator for the Forest of Dean District UNESCO Biosphere Bid

Introduction

This indicator assesses whether people living in the Forest of Dean can **access secure, meaningful work locally**, without excessive, time-consuming or costly commuting, and whether the local economy is able to make effective use of the skills available within the district. It treats employment not solely as a measure of labour market participation, but as a place-anchored condition of prosperity that shapes household stability, business viability and community life.

In the Forest of Dean, **employment outcomes are strongly influenced by the district's geography and connectivity**. The Forest has relatively strong road links to surrounding labour markets, particularly to the north and east, which increases access to higher-paid work but also creates a **structural "workplace containment" challenge**. Time and income are lost to commuting while daytime economic and community presence is reduced. This creates a structural risk in which skills developed by Forest residents are more likely to be deployed outside the district, limiting the depth and resilience of the local labour market.

This indicator therefore focuses on the relationship between work, skills and place: **whether employment opportunities are sufficiently rooted in the Forest to sustain livelihoods, retain skills locally and support business continuity**. It is grounded in nationally recognised deprivation and access evidence. The Index of Multiple Deprivation (IMD) 2025 shows that deprivation in the Forest of Dean is not driven primarily by unemployment, but by income constraints, underemployment and barriers to accessing suitable work locally. These patterns overlap with areas where residents must travel further for better-paid employment, reinforcing the importance of workplace containment and skills alignment as economic, not merely social, issues.

In a UNESCO Biosphere context, this indicator demonstrates that designation supports a living, working landscape by strengthening local employment pathways aligned with land-based, environmental and place-specific economic activity. It shows that **prosperity depends on whether opportunity is distributed locally rather than concentrated outside the district**, and whether skills developed within the Forest can be retained and deployed within its economy over time.

Employment, Underemployment and Economic Inactivity

What is measured

- Employment and economic inactivity rates
- Underemployment (including part-time work where full-time is desired)
- Sectoral distribution of employment
- Stability and quality of employment (qualitative where necessary)

Place-specific detail
The Forest of Dean typically exhibits employment rates comparable to regional averages, yet this can mask structural fragility. IMD 2025 evidence indicates that income deprivation persists in specific neighbourhoods despite relatively high levels of labour market participation, suggesting that the issue is not access to work per se, but **access to secure and adequately paid work locally.**

Underemployment is a particular risk in a district where a significant proportion of residents commute out for higher-paid roles. Local employment can therefore skew towards lower-paid, part-time or seasonal work, particularly where the visitor economy and service sectors dominate. This dynamic affects household prosperity and also reduces the availability of skilled labour during the working day, weakening the local business environment.

By tracking employment alongside underemployment and inactivity, the **indicator distinguishes between headline participation and the underlying quality and sustainability of work** available within the Forest economy.

Workplace Containment and Out-Commuting

What is measured
- Levels of out-commuting relative to local employment opportunities
- Average commuting distance and time
- Proportion of residents working outside the district
- Daytime workforce presence (proxied where necessary)

Place-specific detail
The Forest of Dean's road connectivity enables access to employment in neighbouring districts, but this comes at an economic cost. **Out-commuting represents a leakage of time, income and skills from the local economy**. It reduces daytime spending in Forest communities, weakens local supply chains and contributes to recruitment challenges for Forest-based employers.

ONS commuting data consistently shows that a significant proportion of Forest residents travel out of the district for work. IMD 2025 reinforces that areas with higher out-commuting often overlap with income-constrained neighbourhoods, indicating that commuting is not always a choice but **a necessity driven by limited local opportunity at appropriate skill and pay levels**.

This indicator treats workplace containment as a structural economic condition. Improving it is not about restricting mobility, but about strengthening the Forest's capacity to offer viable local employment that competes with external labour markets in terms of quality, stability and progression.

Skills Alignment and Mismatch

What is measured
- Skills levels within the resident workforce
- Skills requirements of Forest-based employers

• Evidence of skills mismatch (qualitative and quantitative)
• Employer-reported recruitment and retention difficulties

Place-specific detail
The Forest of Dean has a workforce with diverse and transferable skills, including technical, land-based and practical competencies. However, many residents commute out for work that better matches their qualifications or experience. **This points to a misalignment between skills supply and the structure of local opportunity rather than a simple skills deficit**. While the rise in working from home can go some way to address this deficit, as a solution it neglects those just beginning to enter the workforce or who are not skilled in office-based employment.

IMD 2025 evidence shows **that deprivation related to employment and income persists even where skills are present, reinforcing the importance of aligning skills development with the types of work that can be sustained locally**. Without this alignment, investment in skills risks benefitting external labour markets rather than strengthening the Forest economy.

A biosphere framework provides a mechanism to **reposition forestry, conservation, regenerative land use and nature-based tourism as skilled, long-term employment pathways**, helping to close the gap between skills and opportunity by legitimising and coordinating place-specific careers.

Apprenticeships and Local Skills Pipelines

What is measured
• Apprenticeship starts and completions
• Alignment of apprenticeships with Forest-relevant sectors
• Retention of apprentices within the local economy
• Progression pathways (qualitative assessment)

Place-specific detail
Apprenticeships are a critical mechanism for retaining skills locally, yet **their economic impact depends on whether apprentices can transition into sustained local employment**. In the Forest of Dean, the economic impact of apprenticeships depends on the availability of local progression pathways. Where higher-level roles are limited within the Forest, trained individuals may need to seek advancement outside the district.

By tracking starts alongside completions and retention, the indicator focuses on whether apprenticeships are strengthening local skills pipelines or acting as a stepping stone out of the Forest.

A biosphere designation supports more coherent skills pathways **by linking apprenticeships to land-based management, environmental stewardship, conservation, and locally rooted visitor economy roles**, embedding training within the Forest's long-term economic structure.

Monitoring and Evidence Base

This indicator draws on existing datasets and practice, including (non-exhaustive):
• IMD 2019 and IMD 2025 (employment, income and access domains)
• ONS / Nomis employment, commuting and apprenticeship data

• Inform Gloucestershire labour market and sectoral indicators
• Local authority economic and skills evidence

The emphasis is on repeatable, nationally recognised datasets, supplemented by qualitative evidence where skills mismatch, underemployment and recruitment challenges are not fully visible through quantitative measures.

UNESCO Bid Relevance

This indicator demonstrates that the Forest of Dean understands prosperity as dependent on access to locally rooted opportunity, not simply employment participation. It shows that the district can identify and monitor structural risks associated with out-commuting, skills leakage and underemployment, and that biosphere designation strengthens existing efforts to align work, skills and place. This supports UNESCO expectations around resident benefit, adaptive capacity and the maintenance of a living, working landscape.

Application of Doughnut Economics

This indicator applies Doughnut Economics by addressing the social foundation of secure livelihoods while recognising environmental and spatial limits on economic activity. In the Forest of Dean, the social foundation is expressed through whether people can access meaningful work locally, use their skills effectively and sustain household prosperity without excessive commuting. Opportunity that is concentrated elsewhere undermines this foundation by exporting time, income and skills out of the district.

At the same time, the ecological ceiling is respected by focusing on work that is compatible with the Forest as a living landscape. **Strengthening local opportunity through land-based, environmental and place-aligned employment reduces transport intensity and supports a long practice of intergenerational stewardship rather than extraction**. The indicator therefore distinguishes between prosperity that is locally sufficient and regenerative, and prosperity that relies on displacement and leakage. Doughnut Economics functions here as a governance test: does the local economy provide opportunity where people live, within the limits and character of the Forest itself?

Annex

Annex 1: Data sets

1. Employment, inactivity and underemployment
   Primary sources
   • IMD 2019 and 2025
   • ONS / Nomis labour market statistics

What these support
• Identifying structural income and employment risks
• Distinguishing participation from quality of work

2. Commuting and workplace containment
   Primary sources
   • ONS commuting and travel-to-work data

What these support
• Measuring skills and income leakage
• Tracking changes in workplace containment over time

3. Skills and apprenticeships
   Primary sources
   • Nomis apprenticeship data
   • Local authority skills evidence

What these support
• Monitoring skills pipelines
• Assessing retention within the local economy

Annex 2:

Mapping the Work, Skills & Local Opportunity Indicator to MAB Zones

Indicator component	**Core areas**	**Buffer zones**	**Transition areas**
Employment & underemployment	Limited direct	Stewardship-linked roles	Primary employment base
Workplace containment	Indirect constraint	Reduced travel intensity	Primary focus
Skills alignment	Conservation skills	Land-based skills	Primary delivery
Apprenticeships & pipelines	Limited	Linked pathways	Primary training and employment
Governance function	Defines limits	Tests compatibility	Tests improvement of local opportunity

Local Wealth Retention & Community Economy (Community Wealth Building)

Expanded Prosperity Indicator for the Forest of Dean District UNESCO Biosphere Bid

Introduction

This indicator assesses whether economic activity in the Forest of Dean generates lasting local benefit by retaining and circulating wealth within the district, so that **Forest-based businesses, communities and households** benefit directly from the value created by the local economy rather than experiencing persistent leakage and fragility. It is explicitly **business-supportive** in intent: strengthening the conditions under which local enterprises can grow, reinvest while remaining firmly rooted in the Forest.

It treats local wealth retention as a **place-shaped outcome**, not simply a function of business growth or employment rates. In the Forest of Dean, the conditions that determine whether value is retained locally are strongly influenced by dispersed settlement patterns; a high proportion of SMEs and microbusinesses; out-commuting for higher-paid work; the structure of ownership in key sectors; and the way supply chains, procurement and tourism are organised. These factors shape not only household prosperity but also **business viability**, determining whether local firms can access markets, secure contracts, retain skilled labour and compete with externally owned operators. They are not incidental issues but structural features of how "what's special" about the Forest has historically interwoven landscape, communities, industry, trade and transport.

This indicator is further grounded in nationally recognised deprivation and access evidence. The **Index of Multiple Deprivation (IMD) 2025** highlights that, while the Forest of Dean does not rank among the most deprived districts overall, specific neighbourhoods experience persistent disadvantage across income, employment, housing and access domains. These patterns overlap with areas where **local value capture is weaker**: where residents must commute out for higher wages, where externally owned businesses dominate supply chains, or where visitor activity generates pressure without corresponding local reinvestment. IMD therefore provides a critical spatial lens for understanding why economic activity alone does not guarantee prosperity for **local enterprises or households**, and why a place-based governance framework such as a biosphere is appropriate.

In a **UNESCO Biosphere** context, this indicator demonstrates that designation is not about constraining economic life, but about ensuring that the Forest remains a **living, working landscape** in which economic activity strengthens **locally rooted businesses**, communities and stewardship over time. By prioritising local ownership, supply-chain depth and circulation of value, the indicator supports SME resilience and growth while reducing reliance on extractive or externally controlled economic models, with success measured through improved local wealth retention.

Local Procurement and Value Circulation

What is measured

• Proportion of public and anchor-institution spend retained locally or within the Forest / Gloucestershire economy
• SME participation in local procurement and supply chains
• Use of social value and local multiplier approaches in commissioning
• Evidence of local supply-chain depth in key Forest sectors (qualitative where necessary)

Place-specific detail

The Forest of Dean can exhibit steady levels of economic activity while still experiencing weak translation into local prosperity because a significant proportion of spend leaks out of the district through national frameworks, external suppliers and ownership structures. This aligns with the economic case for a Forest biosphere, which emphasises that prosperity depends on **how value circulates**, not simply on how much activity occurs.

IMD 2025 evidence shows that communities experiencing lower household prosperity often coincide with reduced access to local employment opportunities that retain value locally, reinforcing the importance of procurement and supply-chain design as tools of economic resilience. Using IMD alongside procurement and business data allows the biosphere to track whether economic governance interventions are strengthening local circulation of wealth in the places where it matters most.

Local authority procurement data and Inform Gloucestershire business indicators provide a repeatable baseline for tracking local spend retention and SME participation over time.

Local Ownership, SMEs and Enterprise Resilience

What is measured

• Business ownership patterns (local vs externally owned where identifiable)
• SME and microbusiness survival rates
• Cooperative, community and employee-owned enterprise presence
• Succession and continuity risk signals (qualitative where data is limited)

Place-specific detail

The Forest of Dean's economy is characterised by a high proportion of SMEs and microbusinesses, many of which are deeply embedded in place. While this structure provides flexibility and resilience potential, it also creates vulnerability where enterprises face thin margins, skills shortages or limited access to finance.

Local ownership matters because it determines whether profits are reinvested locally, whether decision-making reflects Forest conditions, and whether enterprises remain anchored through economic cycles. IMD 2025 evidence reinforces that deprivation in the Forest is not primarily driven by unemployment, but by structural weaknesses in how economic value is retained and reinvested locally.

The Forest's long-standing cooperative traditions and parish-level organisation provide a strong cultural and institutional foundation for alternative ownership models. A biosphere framework

enables these traditions to be recognised as economic assets and supported systematically, rather than treated as marginal or exceptional.

Community Enterprises and Cooperative Economy

What is measured

- Presence and diversity of community, cooperative and social enterprises
- Asset-based community ownership (where evidenced)
- Role of community enterprises in service provision, employment and local supply chains
- Longevity and capacity to scale (qualitative assessment)

Place-specific detail

Community enterprises play a disproportionate role in the Forest economy relative to their size, particularly in sectors where market provision is fragile, including local services, food, energy, heritage and visitor infrastructure. These enterprises retain spend locally while also reinforcing social infrastructure and place identity.

The Forest's parish and voluntary sector ecology enables collaboration between community enterprises, local authorities and residents. This demonstrates delivery capability, not just aspiration. A biosphere designation strengthens this role by aligning community enterprise activity with long-term landscape stewardship and economic resilience rather than short-term funding cycles.

Visitor Economy and Retention of Spend

What is measured

- Local retention of visitor spend (where available or proxied)
- Balance between locally owned and externally owned visitor services
- Seasonality and distribution of economic benefit
- Linkages between tourism, local supply chains and community enterprises

Place-specific detail

Tourism contributes significantly to the Forest economy, but its impact on prosperity depends on **how visitors engage with place and where value is captured**. High-turnover, externally owned accommodation, attractions and platforms can increase visitor numbers while allowing profits to leak out of the district, intensifying housing pressure, congestion and service demand without strengthening local livelihoods. By contrast, **slow tourism** (characterised by longer stays, locally owned accommodation, locally delivered activities and deeper engagement with the Forest's landscape and communities) is more likely to retain spend locally and distribute benefit across small businesses.

The Forest Economic Partnership evidence frames tourism within a biosphere as part of a **working landscape**, not a consumption-led model. A slow tourism approach aligns directly with this framing: it prioritises local ownership, shorter supply chains and community-led visitor services, encouraging visitors to spend more time and money within the Forest rather than passing through. In a biosphere context, this strengthens SME viability while supporting

stewardship and place protection, ensuring that tourism growth contributes to local wealth retention rather than increasing pressure without corresponding community benefit.

Case Studies Illustrating Delivery

Business-led local wealth retention: Forest Economic Partnership

The Forest Economic Partnership provides a clear example of how local wealth retention and business resilience intersect in practice. Established as a business-led partnership, the FEP's explicit purpose is to strengthen the Forest's internal economy by improving local supply-chain connectivity, collaboration and investment readiness, rather than allowing value to leak out through fragmented or externally controlled economic activity.

The FEP's economic case for a Forest of Dean UNESCO Biosphere Reserve identifies weak local value capture as a structural constraint on prosperity, and positions business-to-business collaboration and place-anchored growth as core solutions. For Forest-based firms, participation supports resilience through stronger local networks, improved access to skills and partnerships, and a collective economic narrative that prioritises existing enterprises rather than displacement.

In a biosphere context, the FEP demonstrates that community wealth building can be business-led, economically credible and environmentally aligned. It shows how firms themselves can act as agents of local value retention when governance frameworks support collaboration, stewardship and long-term place benefit.

Community ownership as a wealth-retention mechanism: Dean Heritage Centre

The **Dean Heritage Centre** provides a well-established example of community ownership and control operating as an economic anchor within the Forest of Dean. Managed as an independent charitable trust, the Centre retains income generated through admissions, events, retail and education within the local economy, reinvesting surplus into employment, site maintenance, volunteering opportunities and heritage interpretation rooted in Forest identity.

This ownership model ensures that value generated from the Forest's cultural and landscape assets is not extracted by external operators, but circulates locally, supporting jobs, skills development and community participation. It also demonstrates institutional longevity and delivery capability: the Centre has sustained operations over decades while adapting to changing funding and visitor conditions. In a biosphere context, this illustrates how community ownership can function as a **structural wealth-retention mechanism**, aligning economic activity, stewardship and community benefit without reliance on continual external subsidy.

Monitoring and Evidence Base

This indicator draws on existing datasets and practice, including (non-exhaustive):

- **Inform Gloucestershire** (business structure and spatial economic indicators)
- **Nomis / ONS** business demography and survival data
- Forest Economic Partnership economic evidence

• Local authority procurement and social value reporting
• Community enterprise and cooperative registers (where available)

The emphasis is on **repeatable indicators first**, supplemented by qualitative evidence where ownership and value capture are not visible through national datasets, ensuring monitoring is sustainable over time.

UNESCO Bid Relevance

This indicator demonstrates continuity, capability and credibility. It shows that the Forest of Dean:
• understands prosperity as dependent on how economic value circulates locally, not simply on activity levels;
• integrates economic development with community resilience and landscape stewardship;
• can monitor progress using existing data sources and delivery mechanisms.

Designation therefore strengthens and coordinates existing practice rather than inventing a new economic agenda, aligning with UNESCO expectations around resident benefit, place-based evidence and adaptive governance.

Application of Doughnut Economics

This indicator applies Doughnut Economics by explicitly managing prosperity within two interdependent boundaries: the **social foundation** (secure livelihoods, resilient local enterprises and communities able to meet everyday needs) and the **ecological ceiling** (economic activity that sustains the Forest as a living landscape rather than intensifying extraction or displacement). In the Forest of Dean, the social foundation is expressed through whether economic activity produces locally anchored value—profits retained locally, enterprises rooted in place and employment that supports household security—while the ecological ceiling is expressed through whether that activity operates through shorter supply chains, stewardship-aligned land use and reduced transport intensity rather than high-leakage growth models.

By linking local procurement, ownership, SME resilience and visitor spend retention, the indicator distinguishes **regenerative prosperity**, where money circulates locally and strengthens community capacity, from **extractive prosperity**, where economic output can rise while value leaks out and local pressures increase. Doughnut Economics therefore functions as a governance test: does economic action move the Forest closer to a safe and just operating space by strengthening local circulation of wealth within environmental limits, or does it increase activity without improving lived outcomes for residents? This framing supports accountability in a biosphere context because progress can be tracked through observable changes in local value retention rather than growth metrics alone.

Annex

Annex 1: Data Sets

1. Local procurement and enterprise structure

Primary sources

- Local authority procurement and social value reporting
- Inform Gloucestershire business indicators

What these support

- Tracking local spend retention
- Monitoring SME participation and supply-chain depth

2. Enterprise resilience and ownership

Primary sources

- Nomis / ONS business demography
- Community and cooperative enterprise registers

What these support

- SME survival and continuity
- Identifying ownership and reinvestment patterns

3. Visitor economy and spend retention

Primary sources

- Forest Economic Partnership evidence
- Local tourism and economic monitoring

What these support

- Understanding where visitor value is captured
- Linking tourism activity to community benefit

4. Monitoring approach and governance

Principles

- Use existing data first; fill gaps proportionately
- Focus on circulation and distribution, not only volume
- Treat procurement and ownership as long-term levers

Annex 2

Mapping the Local Wealth Retention & Community Economy Indicator to MAB Zones

Indicator component	**Core areas**	**Buffer zones**	**Transition areas**
Local procurement & value circulation	Limited direct	Indirect: land-based and visitor supply chains	Primary: public spend, SMEs, services
Local ownership & enterprise resilience	Indirect	Stewardship-linked enterprises	Primary: business continuity and reinvestment
Community & cooperative economy	Limited direct	Strong delivery potential	Primary: service provision and employment
Visitor spend retention	Constraints shape scale	Visitor interfaces	Primary: accommodation, attractions, services
Governance function	Defines constraints	Tests compatibility	Tests improvement without ecological pressure

Housing, Land & Living Conditions

Expanded Prosperity Indicator for the Forest of Dean District UNESCO Biosphere Bid

Introduction

This indicator assesses whether people in the Forest of Dean have access to secure, affordable, warm and appropriate homes that support health, workforce stability and long-term community cohesion. It **treats housing not simply as a delivery target, but as core social and economic infrastructure**: a foundation for prosperity, service sustainability and place continuity in a rural district with distinctive settlement patterns and environmental constraints.

In the Forest of Dean, housing outcomes are shaped by a combination of older housing stock, dispersed settlements, constrained land supply, protected landscapes and limited access to mains gas. These conditions **increase the cost of housing delivery and retrofit, while also amplifying the consequences of poor-quality or unaffordable homes**. Housing stress in the Forest therefore manifests less through headline homelessness figures and more through affordability pressure, under-occupation, concealed overcrowding, fuel poverty, health impacts and out-migration of younger and lower-income households.

This indicator is grounded in nationally recognised deprivation and access evidence. The Index of Multiple Deprivation (IMD) 2025 highlights that while the Forest of Dean does not rank among the most deprived districts overall, specific neighbourhoods **experience persistent disadvantage across housing, income, health and access domains**. These patterns overlap strongly with areas characterised by older, energy-inefficient housing stock, limited affordable supply and higher living costs. IMD provides a spatial lens for understanding why housing conditions act as a structural constraint on prosperity in the Forest, even where employment levels appear relatively stable.

In a UNESCO Biosphere context, this indicator demonstrates that housing is integral to sustaining a living, working landscape. Biosphere designation does not weaken environmental protection; it strengthens the case for place-appropriate housing solutions that improve living conditions, reduce fuel poverty and retain communities while respecting landscape character, ecological limits and long-term stewardship.

Affordable Housing Delivery and Access

What is measured

- Delivery of affordable housing relative to identified local need
- Tenure mix and affordability (social rent, affordable rent, shared ownership)

- Rural exception and community-led housing schemes
- Spatial distribution of affordable housing across settlements

Place-specific detail
Affordable housing delivery in the Forest of Dean is constrained by land availability, viability pressures and landscape protections, yet demand remains persistent across both larger settlements and smaller rural communities. Where supply fails to keep pace with need, the consequences are not only social but economic: local employers struggle to retain staff, public services face recruitment challenges, and communities experience demographic imbalance as younger residents are priced out.

IMD 2025 reinforces that housing affordability pressures intersect with income and access deprivation in specific Forest communities. This confirms that housing outcomes cannot be addressed through generic delivery targets alone, but require place-sensitive approaches that reflect dispersed settlements, parish structures and local labour markets. A biosphere framework provides governance legitimacy for such approaches, supporting rural exception sites, community land trusts and locally tailored tenure mixes that retain affordability over time.

Housing Quality, Condition and Energy Efficiency

What is measured
- Housing condition indicators (non-decent homes, hazards)
- EPC ratings and energy efficiency levels
- Prevalence of fuel poverty
- Retrofit activity and take-up (where data is available)

Place-specific detail
The Forest of Dean has a high proportion of older housing stock, including solid-wall properties that are more expensive to insulate and maintain. Energy inefficiency is therefore a structural issue rather than a marginal one, contributing directly to fuel poverty, respiratory and cardiovascular health impacts, and higher living costs.

IMD 2025 highlights health and housing deprivation patterns that align closely with poor housing condition and energy performance. Improving housing quality in the Forest is therefore both a social and economic intervention: reducing NHS demand, improving workforce productivity and lowering household expenditure. A biosphere designation strengthens the case for coordinated, landscape-appropriate retrofit programmes that respect heritage character while improving warmth, efficiency and long-term habitability.

Off-Gas-Grid Housing and Living Costs

What is measured
- Proportion of homes not connected to the gas grid

- Primary heating types and associated costs
- Energy vulnerability and exposure to price volatility
- Access to retrofit and low-carbon heating solutions

Place-specific detail

A significant proportion of homes in the Forest of Dean are off the gas grid, relying on oil, LPG or solid fuel. This exposes households to higher and more volatile energy costs and increases vulnerability during energy price shocks. Off-gas-grid living costs therefore act as a hidden driver of rural deprivation, particularly for lower-income and older households.

IMD evidence captures the cumulative impact of these pressures through income, health and living environment domains, even where absolute fuel poverty rates may be under-reported. A biosphere framework enables integrated responses that link housing retrofit, low-carbon heating, local supply chains and stewardship of woodland and landscape resources, aligning cost reduction with environmental responsibility.

Homelessness, Housing Insecurity and Concealed Need

What is measured

- Statutory homelessness presentations
- Temporary accommodation usage
- Indicators of housing insecurity and concealed homelessness
- Repeat or prolonged housing stress (qualitative where necessary)

Place-specific detail

Homelessness in the Forest of Dean is often less visible than in urban areas, manifesting through sofa-surfing, overcrowding, delayed household formation or forced relocation out of the district. These patterns weaken community cohesion and contribute to labour market leakage, as residents are compelled to move away to secure housing.

IMD 2025 supports this interpretation by highlighting access and housing deprivation that is not always reflected in headline homelessness statistics. A biosphere approach legitimises the use of broader indicators of housing security, recognising that sustaining a living landscape depends on preventing displacement and instability, not merely responding to crisis.

Case Studies Illustrating Delivery

Social housing decarbonisation and energy performance improvement

The Forest of Dean contains a high proportion of off-gas-grid homes and older housing stock, making energy efficiency a critical determinant of living costs and health outcomes.

Retrofit programmes delivered through national funding mechanisms such as the Social Housing Decarbonisation Fund have demonstrated consistent improvements in EPC ratings, reduced energy demand and improved thermal comfort, particularly in older, hard-to-treat housing stock. Evaluations show that these interventions reduce exposure to fuel poverty and cold-related health impacts, with benefits especially pronounced in off-gas-grid rural homes. Delivery in districts such as the Forest of Dean has required bespoke, fabric-first solutions rather than standardised national models, reflecting solid-wall construction, dispersed settlements and landscape constraints. Area-based retrofit approaches also support local supply chains and skills development by creating sustained demand for locally delivered installation and coordination.

Within a biosphere framework, this case illustrates how improving housing conditions can simultaneously reduce fuel poverty, lower environmental impact and strengthen local economic capacity. It reinforces the argument that biosphere designation enables more effective alignment between climate objectives, living conditions and place-specific delivery.

Housing Options and prevention-led delivery in the Forest of Dean

Forest of Dean District Council delivers homelessness prevention and housing stability through its Housing Options service, operating under statutory duties introduced by the Homelessness Reduction Act and supported by national Homelessness Prevention Grant funding. This includes early intervention to prevent loss of accommodation, landlord engagement, tenancy sustainment and the use of temporary accommodation where prevention is not possible.

This activity is particularly significant in the Forest context, where housing insecurity is often concealed rather than highly visible. Limited private rental supply, affordability pressures relative to local wages and the scarcity of alternative accommodation within small settlements increase the risk that housing shocks result in permanent displacement. A prevention-led approach therefore plays a critical role in maintaining community continuity and workforce stability in a dispersed rural district.

In a biosphere context, this case demonstrates existing delivery capability rather than aspiration. It shows how national housing duties are already being adapted to Forest-specific conditions, supporting resident wellbeing and social resilience as integral components of a living, working landscape

Monitoring and Evidence Base

This indicator draws on existing datasets and practice, including (non-exhaustive):

- Inform Gloucestershire (housing condition, affordability and deprivation indicators)
- Local authority housing delivery and homelessness data
- EPC and energy efficiency datasets
- IMD 2025 housing, health and access domains

The emphasis is on combining repeatable quantitative indicators with qualitative evidence to capture concealed rural housing stress and long-term living conditions.

UNESCO Bid Relevance

This indicator demonstrates that the Forest of Dean:
• recognises housing as foundational to prosperity, health and community continuity;
• understands the interaction between landscape constraints, housing quality and living costs;
• has the governance capacity to align housing improvement with stewardship and long-term place benefit.

Designation therefore strengthens existing practice by embedding housing outcomes within a biosphere framework focused on lived conditions, resident benefit and adaptive governance.

Application of Doughnut Economics

This indicator applies Doughnut Economics by positioning housing within the social foundation: the minimum conditions required for people to live healthy, secure and dignified lives. In the Forest of Dean, that foundation is tested not only by affordability, but by housing quality, energy efficiency and the cumulative costs of rural living.

At the same time, the ecological ceiling is respected by prioritising place-appropriate delivery, retrofit over sprawl, and solutions that work with landscape character rather than against it. The indicator therefore distinguishes regenerative housing outcomes, where homes support wellbeing within environmental limits, from extractive models that increase supply or activity while worsening living conditions or landscape pressure.

Doughnut Economics functions here as a governance test: do housing and land-use decisions move the Forest closer to a safe and just operating space by improving lived conditions without breaching ecological limits, or do they address one pressure by intensifying another? In a biosphere context, this framing enables accountability based on lived outcomes rather than housing numbers alone.

Annex

Annex 1: Data Sets

1. Housing affordability and delivery

Primary sources

- Local authority housing delivery data
- Inform Gloucestershire

What these support

- Tracking supply relative to need
- Monitoring spatial distribution of affordability

2. Housing condition and energy efficiency

Primary sources

- EPC datasets
- Local housing condition surveys

What these support

- Monitoring energy performance and fuel poverty risk

3. Housing insecurity and homelessness

Primary sources

- Local authority homelessness and temporary accommodation data
- IMD 2025

What these support

- Identifying visible and concealed housing stress

4. Monitoring approach and governance

Principles

- Use existing datasets first
- Combine quantitative and qualitative evidence
- Treat housing as long-term infrastructure, not a short-term output

Annex 2

Mapping the Housing, Land & Living Conditions Indicator to MAB Zones

Indicator component	**Core areas**	**Buffer zones**	**Transition areas**
Affordable housing delivery	Limited direct	Design compatibility	Primary: settlements and services
Housing quality & retrofit	Constraints define approach	Strong retrofit potential	Primary: existing housing stock
Off-gas-grid living costs	Ecological limits apply	Low-carbon solutions	Primary: households and energy
Housing security	Limited direct	Indirect effects	Primary: community stability
Governance function	Defines limits	Tests compatibility	Tests improvement within limits

Natural Capital, Regenerative Economy & Species Stewardship

Introduction

This indicator assesses whether the Forest of Dean's **natural systems are functioning as long-term productive assets**, supporting livelihoods, wellbeing and resilience while remaining **within ecological limits.** It treats natural capital not as an environmental add-on, but as **core economic infrastructure**: woodland, soils, water systems, species and landscape connectivity that both directly underpin prosperity in the Forest and is integral to its heritage and ongoing culture. These ecological assets are also critical to the natural and economic resilience of the Forest of Dean, and are intertwined with productivity, costs, risk and long-term prosperity for residents and businesses.

This indicator is responsive to the reality that the Forest of Dean is already a **working cultural landscape**, resulting from centuries of managed use, common rights and negotiated stewardship. The purpose is therefore not to invent a new relationship with nature, but to **formalise, evidence and monitor existing productive relationships with the land**, ensuring they remain viable under changing economic and climatic conditions.

In a UNESCO Biosphere context, this indicator evidences the integration of **conservation, sustainable development and learning**, demonstrating how ecological stewardship and economic activity are deliberately aligned and governed over time.

Ecosystem Asset Base and Connectivity

What is measured

The extent, diversity and spatial coherence of the Forest's natural capital assets, including:

- woodland and tree cover (including age structure and management regimes),
- priority and semi-natural habitats,
- common land and wood-pasture systems,
- freshwater networks (rivers, streams, wetlands and floodplains),
- soils and geomorphology,
- habitat connectivity and fragmentation.

Place-specific detail

The Forest's asset base is distinctive in that it is **actively used and interconnected**, rather than zoned into isolated conservation parcels such as e.g. Flow Country (a World Heritage Site, distinct from a biosphere). Woodland, commons, pasture, watercourses and settlements interlock spatially and functionally.

Practices such as coppicing, timber management, common grazing, hedgerow maintenance and mixed farming actively shape the distribution and connectivity of habitats. These uses

maintain habitat mosaics and ecological corridors that would not exist under abandonment or single-use management.

This component therefore establishes a **baseline map of the Forest as a working system**, rather than a static inventory of designated sites.

Condition and Ecological Functionality

What is measured
The quality, resilience and functional health of the Forest's ecosystems, including:

- woodland condition and proportion under active management,
- structural diversity (e.g. coppice cycles, age classes, deadwood),
- habitat quality and invasive species pressure,
- soil health indicators (organic matter, compaction, infiltration),
- freshwater ecological condition and nutrient stress trends.

Place-specific detail
Long-established woodland practices such as **coppicing, rotational management and selective timber harvesting** actively maintain ecological function. Coppice cycles support ground flora, invertebrates and woodland birds, while also producing repeatable economic outputs.

Commoning and grazing play a parallel role, maintaining open habitats and wood-pasture systems, shaping species composition and preventing scrub dominance. These practices directly influence habitat condition, not just landscape character.

Soil and water functionality is similarly shaped by land use: grazing intensity, woodland cover, riparian buffers and historic drainage patterns all affect infiltration, runoff and nutrient cycling. The indicator therefore focuses on **condition as a product of use**, not protection alone.

Where full coverage data is unavailable, the approach prioritises existing **repeatable sentinel monitoring** conducted by multiple organisations over one-off surveys.

Ecosystem Services Underpinning Prosperity through Resilience

What is measured
The ecosystem services through which natural capital delivers tangible economic and social benefits locally, while offering resilience and security nationally, including:

- **Climate regulation**: carbon storage and sequestration in woodland and soils; resilience to heat and drought.
- **Flood regulation and water management**: runoff attenuation, infiltration and catchment-scale regulation.
- **Water quality**: nutrient and sediment buffering through soils, woodland and riparian habitats.

- **Health, wellbeing and recreation**: everyday access to nature for residents, alongside visitor use.
- **Productive outputs**: sustainable timber, charcoal, firewood, pasture productivity and regenerative land outputs.

Place-specific detail
These services are not abstract, offering both opportunity and social outcomes to residents while also underlining a distinct offer to inward investors with the Forest as a heart of **sustainable climate mitigation and national resilience**. Woodland management supports timber, charcoal and biomass markets while delivering carbon storage and microclimate regulation. Soils and woodland regulate runoff and reduce flood risk for settlements and infrastructure downstream. If managed carefully, everyday access to woodland and open land supports health, wellbeing and informal recreation, not just tourism.

The indicator therefore makes visible **value already being delivered**, translating long-standing Forest practices into prosperity-relevant outcomes.

Stewardship Economy and Regenerative Livelihoods

What is measured
Whether maintaining and enhancing natural capital is **economically embedded within a local ecnonomy**, including:

- employment and skills in forestry, land management, restoration and nature-based tourism,
- viability of woodland products, farming and land-based enterprises,
- uptake of regenerative and stewardship-aligned land-use practices,
- locally rooted SMEs and supply chains linked to land management.

Place-specific detail
The Forest has a long tradition of **land-based livelihoods**, including forestry, small-scale woodland products, farming, commoning and associated crafts. These activities already treat natural capital as an economic input rather than an externality.

This component recognises both traditional practices (e.g. coppice products, charcoal) and evolving ones (e.g. regenerative pasture management), focusing on whether they remain **viable, skilled and locally rooted**.

Applied research and advisory practices linked to Hartpury University already inform soil health, grazing systems and nutrient management used by Forest land managers. A biosphere designation provides the mechanism to **formalise and monitor these linkages**, embedding learning within working systems.

Species Stewardship as a Signal of System Health

What is measured
Species outcomes that reflect ecosystem function and governance capacity, using a **sentinel species approach** focused on:

- population stability,
- range and connectivity,
- and management response.

Place-specific detail
Essential species such as **wild boar**, **pine marten** and priority bat species reflect woodland connectivity, habitat quality and the Forest's capacity for coexistence between people and a landscape focused on ecological recovery rather than decorative or vistor-oriented priorities.

The Forest's experience of managing species that generate both ecological value and social challenge demonstrates **adaptive governance**. Species stewardship therefore acts as a hard outcome signal for the effectiveness of natural-capital management, with these same species contribution to the preservation of the natural assets themselves qualifying as both an economic indicator and a demonstration of thriving biodiversity.

Case Studies Illustrating Delivery

Species stewardship in practice: wild boar and pine marten

The Forest's response to wild boar and pine marten illustrates its ability to manage ecological complexity through monitoring, coordination and public engagement. These species act as indicators of woodland connectivity and governance maturity, not simply conservation success.

Regenerative land use and applied research linkages

The Forest already draws on applied land-use research and advisory practice linked to Hartpury, particularly in soil health, grazing systems and nutrient management. A biosphere designation enables Forest-based demonstration, monitoring and learning without inventing new delivery structures.

Early pilot illustration: Regenerative Pasture & Catchment Demonstration Cluster

A small cluster of commercially operating pasture-based farms in sensitive Forest catchments would provide:

- repeatable soil and water monitoring,
- evidence of regenerative practice at scale,
- and a direct link between stewardship and farm resilience.

Monitoring and Evidence Base

This indicator draws on existing datasets and practice, including:

- Forest of Dean Sustainable Economy Strategy evidence,

- Forest Economic Partnership analysis on natural capital and working landscapes,
- spatial, socioeconomic and environmental data from Inform Gloucestershire,
- targeted sentinel monitoring where gaps exist.

The emphasis is on **biophysical indicators first**, with valuation used selectively.

UNESCO Bid Relevance

This indicator demonstrates **continuity, capability and credibility**. It shows that the Forest of Dean already:

- functions as a working cultural landscape,
- uses natural capital productively and responsibly,
- integrates conservation with livelihoods,
- and has the governance maturity to monitor, learn and adapt.

Designation therefore strengthens and coordinates existing practice rather than imposing a new conservation model, aligning directly with the expectations of UNESCO for Biosphere Reserves.

Application of Doughnut Economics

This indicator applies Doughnut Economics by explicitly managing prosperity within two interdependent boundaries: the **ecological ceiling** defined by the condition and limits of the Forest's natural systems, and the **social foundation** defined by livelihoods, wellbeing and long-term economic security for residents. In a working landscape such as the Forest of Dean, ecological limits are expressed through ecosystem condition, connectivity and species viability, while the social foundation is delivered through viable land-based livelihoods, access to nature and community stewardship. The indicator therefore focuses on whether economic activity maintains or improves ecosystem function over time, rather than simply increasing output.

By linking woodland management, farming, recreation and species outcomes directly to ecosystem condition and livelihood resilience, the indicator distinguishes **regenerative activity**, which strengthens the Forest's asset base, from **extractive activity**, which increases pressure without improving long-term wellbeing. This provides a practical decision-making framework that replaces growth-only measures with place-specific tests of whether activity moves the Forest towards or away from a safe and just operating space. In this way, Doughnut Economics functions as a sustainability governance tool that supports accountability, learning and long-term prosperity within a UNESCO Biosphere context.

Annex

Annex 1: Data Sets

1. Spatial, environmental and natural capital datasets

Primary sources

- Local habitat and land-use mapping held by Forest of Dean District Council and partners
- Local Nature Recovery Strategy (LNRS) datasets (once adopted)
- Woodland and land-management datasets held by Forestry England and partner organisations
- Environment Agency datasets on water bodies, catchments and ecological status

What these support

- Baseline mapping of woodland, habitats, commons and water systems
- Habitat extent, connectivity and fragmentation
- Catchment-scale assessment of water quality and flood regulation
- Identification of priority areas for stewardship and restoration

These datasets underpin **Ecosystem Asset Base & Connectivity** and **Condition & Ecological Functionality** components of the indicator.

2. Condition, soils and water monitoring

Primary sources

- Site condition data for designated habitats (where applicable)
- Soil health and land-use proxies from agricultural and environmental monitoring programmes
- Environment Agency water quality and nutrient pressure datasets
- Catchment-scale modelling used by local authorities and partners

Supplementary approaches

- Sentinel site monitoring (e.g. representative woodland blocks, pasture systems or riparian areas)
- Repeatable, low-burden soil health indicators (organic matter, compaction, infiltration proxies)

What these support

- Tracking ecosystem condition over time
- Identifying early warning signals of degradation
- Linking land-use practices to functional outcomes

These datasets support **Condition & Ecological Functionality** and **Ecosystem Services** components.

3. Species and biodiversity data

Primary sources

- Local Environmental Records Centre (LERC) species records
- Partner monitoring programmes (e.g. bat surveys, mammal records)
- National species distribution datasets where relevant

Community and partnership inputs

- Validated citizen science schemes
- Land-manager and conservation partner reporting

What these support

- Sentinel species monitoring (e.g. wild boar, pine marten, bat species)
- Range, presence and trend analysis
- Evidence of habitat connectivity and system health

These datasets underpin **Species Stewardship as a Signal of System Health**.

4. Land use, stewardship and livelihoods data

Primary sources

- Agricultural land-use and scheme participation data (e.g. Environmental Land Management uptake)
- Forestry and woodland management records
- Local authority economic and employment data

Applied research and advisory inputs

- Research-informed practice and monitoring linked to Hartpury University and regional advisory networks

What these support

- Tracking regenerative and stewardship-aligned land use
- Monitoring the scale and viability of land-based livelihoods
- Linking ecological stewardship to economic resilience

These datasets support **Stewardship Economy & Regenerative Livelihoods**.

5. Recreation, wellbeing and everyday use of natural capital

Primary sources

- Access to greenspace and rights-of-way data

- Visitor and recreation data held by local authorities and partners
- Health and wellbeing proxies linked to access to nature

What these support

- Understanding everyday use of the Forest's natural capital
- Assessing pressure, carrying capacity and benefits
- Linking natural capital to wellbeing outcomes

These datasets contribute to **Ecosystem Services** and cross-link with tourism and wellbeing indicators.

6. Socioeconomic and contextual data

Primary source

- Inform Gloucestershire

What this supports

- Spatial and socioeconomic context for natural capital use
- Integration with employment, skills, health and access indicators
- Baseline comparison and trend analysis over time

Inform Gloucestershire provides the **integrating backbone** that allows environmental data to be interpreted alongside prosperity outcomes.

7. Monitoring approach and governance

The monitoring framework for this indicator is based on the following principles:

- **Use existing data first**: prioritising recognised national and local datasets
- **Fill gaps proportionately**: using sentinel sites and targeted monitoring where needed
- **Biophysical indicators first**: with valuation used selectively
- **Repeatability over perfection**: focusing on trends rather than one-off precision
- **Shared ownership**: data held and interpreted collaboratively across partners

This approach ensures the indicator is **credible, affordable and sustainable over time**, supporting both local decision-making and UNESCO periodic review requirements.

8. Relationship to UNESCO Biosphere monitoring

The datasets and approaches outlined above directly support:

- monitoring of ecosystem condition and services,
- demonstration of conservation–development integration,
- evidence of learning and adaptive management, and
- transparent reporting against biosphere objectives.

By drawing on existing evidence and strengthening coordination rather than creating new reporting burdens, the Forest of Dean positions itself to meet the expectations of UNESCO for Biosphere Reserves in a proportionate and place-appropriate way.

Annex 2

Mapping the Natural Capital, Regenerative Economy & Species Stewardship Indicator to MAB Zones

Indicator component	Core areas	Buffer zones	Transition areas
Ecosystem asset base & connectivity	Core woodland, priority habitats and sensitive sites act as ecological reference points, providing baselines for system health and connectivity	Habitat mosaics, commons, wood-pasture and catchments maintain connectivity between core areas	Settlements, farms and access land reinforce connectivity through hedgerows, green infrastructure and everyday landscape management
Condition & ecological functionality	Priority given to maintaining high ecological integrity, resilience and low disturbance	Active management (e.g. coppicing, grazing, timber) maintains structural diversity and functional condition	Condition maintained through good practice in land use, development and infrastructure, avoiding cumulative pressure
Ecosystem services	Core areas underpin regulating services (carbon, water, biodiversity refugia)	Buffer zones deliver the majority of active ecosystem services (flood regulation, soil health, productive woodland)	Transition areas receive and depend on services such as flood protection, recreation, wellbeing and climate resilience

Indicator component	Core areas	Buffer zones	Transition areas
Stewardship economy & regenerative livelihoods	Limited economic activity, focused on conservation management and monitoring	Primary zone for stewardship-based livelihoods: forestry, commoning, regenerative farming, land management	Enterprises, skills, supply chains, tourism and service activities linked to stewardship outcomes
Species stewardship (sentinel species)	Population stability and habitat quality monitored as early-warning signals	Habitat connectivity and coexistence actively managed	Human–wildlife interaction managed through engagement, learning and adaptive practice
Learning, research & monitoring	Ecological reference and long-term condition monitoring	Demonstration of compatible land-use practices and applied learning	Knowledge exchange, skills development, community participation and innovation
Governance role of the indicator	Defines ecological limits and system thresholds	Tests whether activity strengthens or weakens system function	Tests whether livelihoods, access and development remain within ecological limits

Tourism, Wellbeing & Carrying Capacity

Expanded Prosperity Indicator for the Forest of Dean District UNESCO Biosphere Bid

Introduction

This indicator assesses whether tourism in the Forest of Dean **contributes to long-term local prosperity and wellbeing without undermining the environmental, social and infrastructural conditions on which that prosperity depends**. It treats tourism not as an inherently positive or negative force, but as an activity whose impacts are shaped by scale, distribution, ownership and management.

In the Forest of Dean, tourism is a significant and growing component of the local economy, but its benefits are **unevenly captured and unevenly experienced**. The Forest's nationally significant woodland landscape, ease of access from major population centres and strong brand identity generate high visitor numbers, particularly for short, day-based visits. These patterns can intensify pressure on transport networks, public spaces, habitats and local services while delivering limited benefit to local businesses, employment stability or household prosperity.

This indicator therefore reframes tourism success away from volume-based metrics and toward **carrying capacity, value per visit, and resident wellbeing**. It recognises that unmanaged tourism can weaken prosperity by increasing costs, congestion and service demand, while well-managed tourism can support locally rooted enterprises, diversify income streams and reinforce place identity.

The indicator is grounded in **nationally recognised deprivation and access evidence**. The Index of Multiple Deprivation (IMD) 2025 shows that while the Forest of Dean does not rank among the most deprived districts overall, **access, housing and income pressures overlap with areas experiencing the greatest visitor impact**. This overlap highlights why tourism must be assessed as part of a wider prosperity system: visitor activity can amplify existing pressures rather than compensate for them. A place-based governance framework such as a biosphere is therefore necessary to manage tourism in ways that support resident benefit alongside visitor experience.

In a UNESCO Biosphere context, this indicator demonstrates that designation is **not about limiting access or economic activity**, but about ensuring that tourism functions as part of a **living, working landscape**, aligned with environmental limits, community tolerance and long-term wellbeing.

Visitor Numbers, Pressure and Carrying Capacity

What is measured

- Visitor numbers relative to site, infrastructure and network capacity
- Spatial concentration of visitor pressure
- Transport, parking and access demand
- Environmental, amenity and service impacts at peak times

Place-specific detail
Visitor pressure in the Forest of Dean is **highly concentrated**. A limited number of accessible woodland sites, trailheads and visitor hubs absorb a disproportionate share of visitor activity, particularly during weekends, school holidays and seasonal peaks. This concentration reflects both the Forest's geography and its transport network, but it also results in recurrent congestion, parking overspill, wear on paths and facilities and pressure on surrounding settlements.

These impacts are not evenly distributed. IMD 2025 access and living environment domains indicate that communities experiencing the greatest visitor pressure often have **limited public transport alternatives, constrained road capacity and fewer local services**, increasing the likelihood that tourism affects everyday access and resident wellbeing. In this context, unmanaged visitor growth can reduce quality of life even where economic indicators appear stable.

A biosphere framework enables tourism to be governed through the lens of **carrying capacity rather than demand alone**. This includes recognising ecological limits, infrastructure thresholds and community tolerance as legitimate constraints, and using visitor management, site design and information to concentrate activity where it can be absorbed while protecting more sensitive areas.

Length of Stay, Spend per Visitor and Value Distribution

What is measured
- Average length of visitor stay
- Spend per visitor (where available or proxied)
- Balance between day visits and overnight stays
- Distribution of visitor spend across local businesses

Place-specific detail
Tourism value in the Forest of Dean is shaped less by total visitor numbers than by **how long visitors stay and where they spend**. A tourism profile dominated by day visits can generate high footfall with relatively low local economic return, particularly where food, accommodation or booking platforms are externally owned.

By contrast, longer stays are more likely to support **locally owned accommodation, independent retail, food producers and activity providers**, increasing local value retention and spreading benefit across the Forest's economy. This distinction is critical in a district characterised by SMEs and microbusinesses, where small changes in visitor behaviour can have disproportionate impacts on viability.

Forest Economic Partnership evidence frames tourism within a biosphere as part of a **working landscape rather than a consumption-led model**. Encouraging longer stays and deeper engagement aligns visitor activity with local supply chains and stewardship, while reducing the intensity of peak-day pressure associated with pass-through tourism.

Seasonality, Employment and Resident Wellbeing

What is measured
- Seasonality of tourism-related employment

• Stability and quality of tourism jobs
• Interaction between tourism activity and resident wellbeing
• Pressure on local services during peak periods

Place-specific detail
Tourism employment in the Forest of Dean is often **seasonal and uneven**, contributing to income volatility and limiting long-term skills development. While tourism provides important employment opportunities, particularly in rural settlements, the concentration of activity into peak periods can undermine job security and progression.

At the same time, peaks in visitor numbers place additional strain on local services, transport and public spaces, affecting resident wellbeing and access. IMD evidence reinforces that prosperity in the Forest is shaped not only by employment availability, but by the **interaction between employment, income, access and living environment conditions**, highlighting the importance of employment stability and the lived experience of place alongside headline job numbers.

Managing tourism to smooth seasonality, support year-round roles and align activity with community capacity therefore contributes directly to wellbeing outcomes. This requires governance approaches that prioritise balance and resilience rather than volume-driven growth.

Case Studies Illustrating Delivery

Visitor management and concentration: Beechenhurst Visitor Centre
Beechenhurst Visitor Centre operates as a principal gateway to the Forest of Dean, concentrating high volumes of visitor activity at a managed site with dedicated facilities, parking, information and waymarked access. This enables significant visitor numbers to be accommodated while limiting dispersed pressure on more sensitive woodland areas and surrounding communities.

The site demonstrates an established approach to visitor management through infrastructure provision, spatial design and information, rather than restriction alone. In a biosphere context, Beechenhurst illustrates how active management can protect ecological integrity and resident amenity while maintaining public access to the Forest's landscape.

Place-based wellbeing and retreat tourism in the Forest of Dean

Nature-anchored, low-intensity visitor experiences

The Forest of Dean supports a growing number of **small-scale wellbeing and retreat-based tourism providers**, such as Wilde Earth Journeys, offering residential retreats, wellness activities such as meditation and yoga and nature-connection experiences rooted directly in the Forest's landscape. These activities are typically hosted in rural or woodland settings and are designed around **extended stays, small group sizes and low environmental impact**, rather than high visitor throughput.

This form of tourism is explicitly slow by design. Visitors are encouraged to spend longer periods in the Forest, engage deeply with the environment and use locally provided accommodation, food and services. As a result, spend per visitor is higher and more locally retained, while

pressure on transport networks, parking and public sites is significantly lower than day-trip dominated tourism.

In a biosphere context, wellbeing and retreat tourism illustrates how visitor activity can **support prosperity and wellbeing without breaching carrying capacity**. By aligning economic benefit with stillness, landscape appreciation and stewardship, this model demonstrates a viable alternative to volume-led tourism growth. It shows how the Forest's natural environment can support livelihoods and visitor experience simultaneously, while reinforcing the Forest's identity as a place for restoration, health and long-term relationship with landscape rather than short-term consumption.

Monitoring and Evidence Base

This indicator draws on existing datasets and practice, including (non-exhaustive):
- Inform Gloucestershire (tourism, access, infrastructure and wellbeing indicators)
- Forest Economic Partnership tourism and economic evidence
- Local authority visitor, transport and parking data
- Site-specific visitor monitoring where available

The emphasis is on monitoring **pressure, distribution and value**, not headline visitor numbers alone, ensuring that governance decisions respond to lived impacts rather than promotional metrics.

UNESCO Bid Relevance

This indicator demonstrates that the Forest of Dean:
- understands tourism as an activity that must be actively governed within a living landscape;
- recognises the relationship between visitor pressure, wellbeing and prosperity;
- has existing mechanisms for visitor management and place-based tourism delivery.

Designation therefore strengthens coordination, accountability and long-term stewardship rather than inventing a new tourism agenda.

Application of Doughnut Economics

This indicator applies Doughnut Economics by explicitly assessing tourism activity against two interdependent boundaries: the **social foundation**, defined by resident wellbeing, stable livelihoods and equitable access to place; and the **ecological ceiling**, defined by the carrying capacity of the Forest's landscapes, habitats, infrastructure and communities.

In the Forest of Dean, failure to meet the social foundation occurs where tourism activity generates high visitor numbers without improving lived outcomes for residents. This includes **unstable or seasonal employment**, limited local value retention, congestion that restricts everyday access, and pressure on services and housing without corresponding community benefit. In Doughnut terms, tourism can appear economically successful while still leaving households and communities **below the social foundation**, particularly in settlements experiencing the greatest visitor impact.

Overshoot of the ecological ceiling occurs where tourism intensity exceeds the capacity of woodland sites, transport networks and local infrastructure to absorb demand without degradation. This includes **habitat wear, path erosion, parking overspill, traffic congestion and declining visitor experience**, as well as cumulative impacts on resident amenity. In these conditions, tourism growth increases activity while reducing environmental quality and social tolerance, pushing the system beyond safe operating limits.

The Doughnut framework therefore functions as a **governance test rather than an outcomes metric**. It asks whether tourism decisions move the Forest closer to a safe and just operating space by improving resident wellbeing and locally retained value **without breaching carrying capacity**, or whether they increase volume while deepening social shortfall and environmental overshoot.

By focusing on **length of stay, value distribution, seasonality and visitor management**, this indicator distinguishes **regenerative tourism**, where visitor activity strengthens place, livelihoods and stewardship, from **extractive tourism**, where pressure rises without improving lived outcomes. In a biosphere context, Doughnut Economics provides a decision-making lens that supports adaptive management: enabling the Forest to redirect tourism toward forms that sit within environmental limits while meeting social needs, rather than treating growth in visitor numbers as an end in itself.

Annex

Annex 1: Data Sets

1. Visitor pressure, access and infrastructure

Primary sources

- Inform Gloucestershire (visitor, access and infrastructure indicators)
- Local authority transport, parking and highways data
- Forestry England site-level visitor monitoring (where available)

What these support

- Identifying spatial concentration of visitor pressure
- Monitoring congestion, parking overspill and access constraints
- Assessing infrastructure capacity relative to visitor demand

2. Visitor behaviour and value

Primary sources

- Forest Economic Partnership tourism and economic evidence
- Local tourism monitoring and surveys (where available)
- Accommodation and business data (proxy indicators)

What these support

- Understanding length of stay and spend patterns
- Distinguishing day-trip dominated tourism from longer-stay activity
- Linking visitor behaviour to local value retention

3. Employment, seasonality and wellbeing

Primary sources

- ONS / Nomis employment data (tourism-related sectors)
- Inform Gloucestershire wellbeing and employment indicators
- Local authority service pressure data (qualitative where necessary)

What these support

- Assessing seasonality and stability of tourism employment
- Understanding interaction between tourism peaks and resident wellbeing
- Identifying cumulative impacts on services and communities

4. Monitoring approach and governance

Principles

- Prioritise **pressure, distribution and value**, not headline visitor numbers
- Use **existing datasets first**, supplemented by site-based evidence
- Treat tourism impacts as **systemic and cumulative**, not isolated
- Apply monitoring to **decision-making**, not promotion

Annex 2

Mapping the Tourism, Wellbeing & Carrying Capacity Indicator to MAB Zones

Indicator component	**Core areas**	**Buffer zones**	**Transition areas**
Visitor numbers & pressure	**Strict limits defined by ecological sensitivity**	Managed access and routing	Primary visitor infrastructure and services
Carrying capacity	**Defines ecological and experiential limits**	Tests compatibility of activity	Tests intensity and management effectiveness
Length of stay & value	**Indirect: experiential value without economic capture**	Experience-based activity	Accommodation, food and visitor services
Employment & wellbeing	**Indirect: underpins wellbeing and sense of place**	Stewardship and land-based roles	Primary tourism employment and services
Visitor management	Defines constraints	Tests compatibility	Delivery, coordination and governance
Governance function	**Sets non-negotiables**	Tests alignment	Enables improvement within limits

Community Strength, Safety & Participation

Expanded Prosperity Indicator for the Forest of Dean District UNESCO Biosphere Bid

Introduction

This indicator assesses whether communities in the Forest of Dean are sufficiently **strong, connected and empowered** to sustain safety, wellbeing and shared prosperity over time. It recognises **community strength, participation and informal social infrastructure** as core economic assets: shaping resilience to shocks, access to services, perceptions of safety, and the capacity of places to retain population, skills and local wealth.

The indicator treats community strength as a **place-shaped condition that underpins economic resilience**, as opposed to a siloed 'soft' metric. In the Forest of Dean, patterns of dispersed settlement, limited transport connectivity and stretched formal services mean that **civic participation, volunteerism and community-led provision** play an unusually significant role in meeting everyday needs. Where community capacity is strong, isolation is mitigated, informal guardianship is reinforced and services can be sustained despite structural constraints. Where it weakens, **the impacts are felt economically through declining service access, increased vulnerability to rural crime, reduced labour participation and higher public costs**.

This indicator is grounded in **nationally recognised evidence on deprivation, access and safety**. **Index of Multiple Deprivation (IMD) 2025** data shows that specific neighbourhoods experience persistent disadvantage across access to services, health outcomes and income. These patterns often overlap with areas of greater isolation, weaker transport connectivity and reduced access to care, where **community capacity becomes a determining factor in lived outcomes**. IMD therefore provides a **critical spatial lens** for understanding why participation, volunteering and local ownership are not optional extras but **structural determinants of prosperity** in the Forest.

In a **UNESCO Biosphere context**, this indicator demonstrates that designation **strengthens the social foundations of a living, working landscape**. By embedding participation, stewardship and shared responsibility into governance, a biosphere framework reinforces both formal and informal systems of care, safety and service delivery. Success is measured not only through participation rates or crime statistics, but through increased community capability, reduced vulnerability and improved access to everyday support across the Forest's dispersed settlements.

Civic Participation and Local Decision-Making

What is measured

- Levels of civic participation (voting turnout, parish engagement, community forums where available)
- Participation in local decision-making and co-design processes

- Presence of community-led governance structures
- Qualitative evidence of influence over local priorities

Place-specific detail
The Forest of Dean has a long tradition of parish-level organisation, common rights and local collective action, reflecting a **strong sense of identity and pride in place**. This civic culture has historically enabled communities to organise around shared needs, from managing commons and woodland access to sustaining local services and facilities. However, dispersed settlement patterns and capacity pressures can make participation uneven, with some communities more able than others to engage consistently in decision-making.

IMD 2025 evidence highlights that areas experiencing weaker access to services and higher isolation often face barriers to participation, including digital exclusion, transport constraints and limited institutional capacity. Strengthening civic participation in these areas is therefore **both a democratic and economic objective**: communities with greater voice and agency are better able to shape services, attract investment and sustain local provision. A biosphere framework supports this by embedding participation as a governance norm rather than a one-off consultation activity.

Volunteerism and Social Infrastructure

What is measured
- Levels and diversity of volunteering activity
- Role of volunteers in service delivery and community support
- Longevity and resilience of voluntary organisations
- Capacity pressures and succession risk (qualitative)

Place-specific detail
Volunteerism plays a **disproportionate role** in sustaining everyday life in the Forest of Dean. Volunteers support community transport, care provision, heritage, emergency response, environmental management and social connection, particularly in areas where formal services are stretched or absent. This contribution represents a **significant, though often unquantified, economic value** by reducing demand on statutory services and enabling residents to remain active and supported within their communities.

However, reliance on volunteer capacity also creates vulnerability. A (potentially) insecure volunteer base, funding instability and uneven organisational support can weaken this social infrastructure over time. **IMD 2025** reinforces that communities experiencing cumulative disadvantage are often those most reliant on voluntary provision. In a biosphere context, volunteerism is recognised **not as free labour, but as a strategic asset** requiring coordination, support and long-term stewardship to remain viable.

Community Asset Ownership and Shared Spaces

What is measured
- Extent of community ownership or control of assets (where evidenced)
- Role of community assets in service provision and social connection

• Financial and organisational sustainability of community assets
• Distribution of assets across the Forest

Place-specific detail
Community-owned and community-managed assets form an important part of the Forest's **social and economic infrastructure**, providing spaces for care services, social interaction, cultural activity and local enterprise. These assets help anchor activity locally, retain value within communities and create venues through which participation and volunteering can occur.

The Forest's strong identity and parish ecology provide favourable conditions for community ownership, but capacity and access to capital remain uneven. **IMD 2025 data** indicates that areas with weaker access to services are often those where community assets are most critical, reinforcing the need for governance frameworks that support asset sustainability. A biosphere designation strengthens this by aligning asset ownership with long-term stewardship, service access and resident benefit rather than short-term funding cycles.

Rural Safety and Informal Guardianship

What is measured
• Rural crime indicators (where available and appropriate)
• Perceptions of safety and community confidence (qualitative)
• Presence of informal guardianship and community networks
• Partnership working between communities and statutory agencies

Place-specific detail
Rural crime in the Forest of Dean includes offences such as theft, fly-tipping, wildlife crime and exploitation of isolated locations. These issues are shaped by geography, limited visibility and stretched enforcement capacity. **Community strength plays a critical role** in mitigating risk through informal guardianship, information sharing and local vigilance.

IMD 2025 evidence suggests that areas experiencing isolation and service withdrawal can face heightened vulnerability, not necessarily through higher crime rates, but through reduced capacity to respond and recover. A biosphere framework supports partnership working that recognises community networks as part of the safety infrastructure, strengthening coordination between residents, voluntary groups and statutory services rather than relying solely on enforcement.

Access to Care and Everyday Support

What is measured
• Access to primary care, social care and support services
• Role of community and voluntary provision in care access
• Travel and connectivity constraints affecting service use
• Qualitative evidence of unmet need

Place-specific detail
Access to care services is a **persistent challenge** in the Forest of Dean, shaped by rural geography, transport limitations and workforce pressures. Community-based provision, informal

care networks and volunteer support play a significant role in bridging gaps, particularly for older residents and those with limited mobility.

IMD 2025 highlights that deprivation in rural districts often manifests through access and service-related domains rather than headline income measures. This reinforces the importance of treating **community capacity as a determinant of health and economic participation**. In a biosphere context, care access is linked to stewardship and participation, recognising that healthy communities are better able to engage in economic and environmental activity over time.

Case Studies Illustrating Delivery

Coordinated volunteering, participation and community connection: Forest Voluntary Action Forum (FVAF)
The Forest Voluntary Action Forum (FVAF) provides a clear example of how **community strength, participation and safety** are sustained in the Forest of Dean through coordinated voluntary action. Active since 1994, FVAF functions as the district's central voluntary sector support and volunteer-brokerage organisation, operating the Forest of Dean's only dedicated Volunteer Centre and supporting hundreds of voluntary and community groups each year.

Through this role, FVAF enables the recruitment of over 1,000 volunteers into roles including befriending, volunteer driving, youth support and community service delivery. These activities directly address isolation, access to care and everyday safety in a dispersed rural context, while providing a structured link between grassroots activity and statutory services. FVAF's coordination of the annual Forest Volunteer Awards reinforces pride in place and recognises volunteering as a **core community asset**, helping sustain participation across isolated settlements.

FVAF also supports practical mechanisms that connect residents to support and participation. The Forest Compass directory provides a comprehensive listing of local groups, services and activities, reducing isolation and improving access to informal care and social connection, particularly for residents with limited transport or digital access. Alongside this, FVAF-supported youth initiatives provide structured opportunities for younger residents to engage in community life and build social capital where formal provision is uneven.

In a biosphere context, FVAF demonstrates how **community strength functions as social infrastructure**. By coordinating volunteering, participation and access to support, it strengthens safety, care access and civic capacity across the Forest, illustrating delivery capability that designation can reinforce and align with long-term stewardship rather than replace.

Case study: Community-led wellbeing and preventative care — Wyldverne
Wyldverne provides a place-based example of how **community-led wellbeing provision** strengthens safety and participation in a rural context where formal services are limited. Operating through Forest-rooted practices that combine nature-based activity, group support and facilitated participation, Wyldverne reaches individuals who are often suffer relative isolation, are underserved or reluctant to engage with statutory services.

Its work reduces pressure on health, social care and emergency systems by addressing need early, through trusted relationships and local settings. Participants are not passive recipients but

active contributors, reinforcing confidence, social connection and informal guardianship within their communities. This **preventative, participatory model** aligns closely with the Forest's dispersed settlement pattern, where access to centralised provision is constrained by transport and workforce limitations.

In a biosphere context, Wyldverne demonstrates how **community strength functions as social infrastructure**. By embedding wellbeing, participation and stewardship within everyday life, it contributes to safer communities, improved access to care and sustained civic engagement. Crucially, it shows delivery capability already present in the Forest, which designation can strengthen and coordinate rather than replicate.

Monitoring and Evidence Base

This indicator draws on existing datasets and practice, including (non-exhaustive):
- **IMD 2019 and IMD 2025** (access, health and service-related domains)
- Inform Gloucestershire community and wellbeing indicators
- Local authority data on participation, safety and service access
- Voluntary sector and parish-level qualitative evidence

The emphasis is on combining repeatable quantitative indicators with structured qualitative evidence to capture community capacity, participation and resilience that are not fully visible through national datasets alone.

UNESCO Bid Relevance

This indicator demonstrates **continuity, capability and credibility**. It shows that the Forest of Dean:
- recognises **community strength and participation as economic assets**;
- integrates safety, care access and civic capacity into prosperity outcomes;
- can monitor progress using existing data supplemented by place-based evidence.

Designation therefore strengthens and coordinates existing community capability rather than imposing a new social agenda, aligning with UNESCO expectations around resident benefit, participation and adaptive governance.

Application of Doughnut Economics

This indicator applies Doughnut Economics by strengthening the **social foundation through cooperation, participation and shared responsibility**, recognising these as prerequisites for prosperity in a dispersed rural district. In the Forest of Dean, the social foundation is expressed through access to care, perceptions of safety, civic participation and the ability of communities to meet everyday needs collectively where formal services are stretched.

At the same time, the indicator supports the ecological ceiling by favouring **locally embedded, lower-impact forms of provision** over high-cost, centralised or extractive service models. Community ownership, volunteerism and informal guardianship reduce reliance on long-distance travel, duplication of infrastructure and reactive interventions, aligning social resilience with environmental limits.

Doughnut Economics therefore functions as a governance lens: does investment and decision-making strengthen community capability, safety and care access within the Forest's environmental and spatial constraints, or does it increase pressure on already fragile systems without improving lived outcomes? In a biosphere context, this framing ensures that prosperity is measured through **strengthened community capacity and cooperation**, rather than service volume or expenditure alone.

Annex

Annex 1: Data Sets

1. Civic participation and community capacity

Primary sources

- Local authority participation and governance data
- Parish council and community forum evidence

What these support

- Tracking engagement and local influence

2. Safety and access to services

Primary sources

- IMD 2019 and 2025
- Inform Gloucestershire access and wellbeing indicators

What these support

- Identifying spatial patterns of vulnerability and resilience

3. Voluntary sector and community assets

Primary sources

- Voluntary sector registers and local authority records

What these support

- Monitoring capacity, sustainability and distribution

Annex 2
Mapping the Community Strength, Safety & Participation Indicator to MAB Zones

Indicator component	**Core areas**	**Buffer zones**	**Transition areas**
Civic participation	Limited direct	Stewardship interfaces	Primary: governance & services
Volunteerism	Limited direct	Environmental & care support	Primary: service delivery
Community assets	Limited	Shared-use facilities	Primary: hubs & provision
Rural safety	Constraints shape risk	Informal guardianship	Primary: partnerships
Access to care	Limited	Outreach services	Primary: access & delivery
Governance function	Defines limits	Tests compatibility	Tests resilience