The Policy Context

John Preston
Heritage Chair, STBA

IPCC report Oct 2018:
“12 years to change”
“the Age of Environmental Breakdown”

This is a Crisis
Facing Up to the Age of Environmental Breakdown
Initial report

Laurie Laybourn-Langton, Lesley Rankin and Darren Baxter
February 2019
Extinction Rebellion

CLIMATE CHANGE: 12 YEARS TO SAVE EARTH
Childrens’ Climate Change marches

MARCH NOW
OR
SWIM LATER
Well-being of Future Generations (Wales) Act 2015

The Essentials

- Advise, Encourage & Promote
- Advisory Panel
- Annual Report
- Auditor General for Wales
- Carry out Reviews
- Collaboration
- Future Generations Commissioner for Wales
- Future Generations Report
- Future Trends Report
- Integration
- Involvement
- Long Term
- Make Recommendations
- National Indicators & Milestones
- Prevention
- Public Services Boards
- Responding to the Future Generations Commissioner
- Sustainable Development
- Sustainable Development Principle
- Transparency
- Well-being Duty
- Well-being Goals
- Well-being Statement
Well-being Duty

The Act places a duty that the public bodies will be expected to carry out. A duty means they have to do this by law. The well-being duty states:

"Each public body must carry out sustainable development. The action a public body takes in carrying out sustainable development must include:

a. setting and publishing objectives ("well-being objectives") that are designed to maximise its contribution to achieving each of the well-being goals, and

b. taking all reasonable steps (in exercising its functions) to meet those objectives.

Part 2 'Improving Well-being section 3 'well-being duty on public bodies’ paragraphs (1) and (2)."
Well-being Goals

- A globally responsible Wales
- A Wales of vibrant culture and thriving Welsh Language
- A Wales of cohesive communities
- A more equal Wales
- A prosperous Wales
- A resilient Wales
- A healthier Wales
SCOTLAND

CLIMATE CHANGE PLAN
Summary Document
Long term
The importance of balancing short-term needs with the need to safeguard the ability to also meet long-term needs.

Prevention
How acting to prevent problems occurring or getting worse may help public bodies meet their objectives.

Integration
Considering how the public body’s well-being objectives may impact upon each of the well-being goals, on their other objectives, or on the objectives of other public bodies.

Collaboration
Acting in collaboration with any other person (or different parts of the body itself) that could help the body to meet its well-being objectives.

Involvement
The importance of involving people with an interest in achieving the well-being goals, and ensuring that those people reflect the diversity of the area which the body serves.
To ensure that the cultural, social, environmental and economic value of our heritage continues to make a major contribution to the nation’s wellbeing.
Government strategies – not just Brexit!

but focus on natural capital & natural environment
Clean Growth Strategy

Foreword from the Prime Minister

This Government is determined to leave our natural environment in a better condition than we found it. Clean growth is not an option, but a duty we owe to the next generation, and economic growth has to go hand-in-hand with greater protection for our forests and beaches, clean air and places of outstanding natural beauty.

The opportunity for people and business across the country is huge. The low carbon economy could grow 11 per cent per year between 2015 and 2030, four times faster than the projected growth of the economy as a whole.
1. Develop world leading **Green Finance** capabilities, including by:
   - Working with mortgage lenders to develop **green mortgage** products that take account of the lower lending risk and enhanced repayment associated with more energy efficient properties

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**Improving Our Homes - 13% of UK Emissions**

*Improving the energy efficiency of our homes*

11. Support around £3.6 billion of investment to **upgrade around a million homes** through the Energy Company Obligation (ECO), and extend support for home energy efficiency improvements until 2028 at the current level of ECO funding.

12. We want all fuel poor homes to be upgraded to Energy Performance Certificate (EPC) Band C by 2030 and our **aspiration is for as many homes as possible to be EPC Band C by 2035** where practical, cost-effective and affordable.

13. Develop a long term trajectory to improve the **energy performance standards of privately-rented homes**, with the aim of upgrading as many as possible to EPC Band C by 2030 where practical, cost-effective and affordable.

14. Consult on how **social housing** can meet similar standards over this period.

....”where practical, cost-effective and affordable”
40. Work towards our ambition for **zero avoidable waste** by 2050, maximising the value we extract from our resources, and minimising the negative environmental and carbon impacts associated with their extraction, use and disposal.

41. Publish a new **Resources and Waste Strategy** to make the UK a world leader in terms of competitiveness, resource productivity and resource efficiency.

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### Leading in the Public Sector – 2% of UK Emissions

45. **Agree tighter targets for 2020 for central government** and actions to further reduce greenhouse gas emissions beyond this date.

46. Introduce a **voluntary public sector target of a 30 per cent** reduction in carbon emissions by 2020-21 for the wider public sector.

47. Provide **£255 million of funding for energy efficiency improvements** in England and help public bodies access sources of funding.
• Working with mortgage lenders to develop green mortgage products that take account of the lower lending risk associated with more efficient properties and the reduced outgoings for customers living in more efficient homes.

BEIS Energy Innovation Programme

New projects announced as part of the BEIS Energy Innovation Programme in the Clean Growth Strategy include:

• Up to £10 million for innovations that provide low carbon heat in domestic and commercial buildings
• Up to £10 million for innovations that improve the energy efficiency of existing buildings
• An extra £14 million for the Energy Entrepreneurs Fund, including a new sixth fund
• Up to £20 million in a carbon capture and utilisation demonstration programme
• Up to £20 million to demonstrate the viability of switching to low carbon fuels for industry
• Up to £7 million to develop further the capability of nuclear regulators who support and assess advanced nuclear technologies
• Up to £20 million to support clean technology early stage funding
The first Green GB Week took place 15 – 19 October 2018 – thanks to all of those involved in the week. Details on Green GB week 2019 will follow shortly.

Learn about how clean growth is helping to provide new job opportunities, grow our economy for the benefit of us all and help tackle climate change. And to get involved in building a cleaner, green future.
Aspirations / Targets

All fuel-poor homes band C by 2030?

As many homes as possible band C by 2035?

*where practical, cost-effective and affordable*

(Clean Growth Strategy)

The Government’s commitments on energy efficiency have the potential to deliver the ambition in our central scenario for meeting the fifth carbon budget, provided that the limitations of ‘practical’ and ‘affordable’ do not significantly limit cost-effective uptake:

- The Government states that a possible pathway to 2032 could see a further 6-9 million properties insulated, with further able-to-pay owner-occupied homes insulated to 2035.

- Our Central Scenario includes the insulation of a further 1.5 million solid walls, 2.5 million cavity walls, and 3 million loft top-ups to 2030, with a further 2 million solid walls insulated to 2050.
Skills for the Future

The construction sector, with support from the government, will work closely in the coming months to drive increased investment in skills development, whilst adopting a more strategic and co-ordinated approach to recruitment, and equipping workers with the skills that they will need for the future. This will be achieved through a joint commitment to implement reforms to the Construction Industry Training Board to make it more strategic and industry led, and to enable the sector to make best use of funding from the Apprenticeship Levy.

Transforming construction, up to £170m* - The way we create our buildings has not changed substantially in 40 years and needs a drastic overhaul if it is to deliver the buildings that the UK needs. Construction is currently expensive and too many buildings waste energy. We need to transform construction so that we can create affordable places to live and work that are, safer, healthier and use less energy. By taking a lead in the UK, we can increase our ability to export. Global demand for efficient buildings is rising rapidly, driven by the pressures of urbanisation, affordability, and the need to cut emissions.
Environmental costs of free trade????
UK Aviation Strategy

• Current consultation (to 11 April 2019)
• 7% of UK emissions
• Rising to 25% by 2050?
Circular Economy

The circular economy replaces extraction and waste with restoration and regeneration. Products, components and materials are reused in ways that maintain their utility and value as they move through biological and technical cycles.
25–year Environment Strategy

A Green Future: Our 25 Year Plan to Improve the Environment

Our 25-year goals

We will achieve:

• Clean air
• Clean and plentiful water
• Thriving plants and wildlife
• Reduced risk of harm from environmental hazards such as flooding and drought
• Using resources from nature more sustainably and efficiently
• Enhanced beauty, heritage and engagement with the natural environment

We will manage pressures on the environment by:

• Mitigating and adapting to climate change
• Minimising waste
• Managing exposure to chemicals
• Enhancing biosecurity
Natural, not built environment
Minimise waste

8. Minimising waste

We will minimise waste, reuse materials as much as we can and manage materials at the end of their life to minimise the impact on the environment. We will do this by:

- Working towards our ambition of zero avoidable waste by 2050
Oversight...??  Ambition???

A Green Future: Our 25 Year Plan to Improve the Environment

Draft Environment (Principles and Governance) Bill

Presented to Parliament by the Secretary of State for Environment and Rural Affairs by Command of Her Majesty

December 2018
Waste Strategy - promotes Circular Economy
Keep buildings in GOOD REPAIR!

BS7913:2013: “Guide to the Conservation of Historic Buildings”

“10. Sustainability and energy efficiency

The most effective way of ensuring energy efficiency and sustainability is to keep historic buildings in good repair so that they last as long as possible, do not need replacement and do not suffer from avoidable decay that would require energy and carbon to rectify …
“..there is an uneven playing field between new build and refurbishment. ..There is a high VAT tax of 17.5% imposed on all repair and modernisation..”
*Sustainable Development Commission for ODPM, 2006*

“A range of witnesses have pointed out the perversity of differential VAT rates… We recommend that the Government seek to remove this anomaly.”
*Communities and Local Government Committee – Existing Housing and Climate Change, 2008*
Is there intelligent life on earth?

They charge VAT on building repairs.

I’ll take that as a no.
A JOINED-UP APPROACH???

15 November 2011

Construction, Cash and Carbon
Paul Morrell, Chief Construction Adviser, HMG
The measures or standards that would be called for.
A set of technical propositions that would meet the standard
Trigger points for action – for example, whenever a property is sold, or by a given date.
A baseline (such as an EPC rating) that is fit for purpose.
Affordability and cost effectiveness of requiring those measures or standards.
The availability of skills required for all parts of the process.
The capacity of an organised supply chain.
The development of an accreditation scheme to provide consumer confidence.
The agreement of measures necessary to require and certify compliance.
An increased acceptance, on the part of consumers, of the principle of regulation.
Meeting the “one in, one out” rule.
The legislative process for the regulations themselves.
The carbon footprint from construction
EMISSIONS AND WASTE IN CONSTRUCTION

Cement is the source of about 8% of CO2 emissions

(Chatham House)

If the cement industry were a country, it would be the world’s 3rd largest CO2 emitter

Cement mortar prevents re-use - replacement building in new bricks
WASTE IN FAILED RETROFITS?

Assessing the quality of retrofits in solid wall dwellings

(Leeds University 2017)

51 dwellings

Failures “Endemic”

72% moisture issues pre-retrofit
68% moisture issues post retrofit
62% not “whole house”
16% inadequate quality assurance protocols
64% insufficient design detailing
WASTE OF MONEY AND CARBON!
Initial installation + removal + remedial

Fishwyck, Preston, Failures in 390 dwellings

62 being rectified at cost of £1.5 m

Disastrous Preston retrofit scheme remains unresolved

A disastrous failed external insulation contract run under a government energy saving scheme has affected up to 390 homes in Preston with water penetration, mould and damp.
BS EN 15978:2011
A Construction Standard to support the Circular Economy!

BS EN 15978: 2011 defined the life (cycle) in multiple stages

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Reuse
Recycling
Potential

Operational energy use
Operational water use

Embodied impacts of refurbishment

Embodied impacts
“Special considerations in making reasonable provision”

“3.8c buildings of traditional construction with permeable fabric that both absorbs and readily allows the evaporation of moisture”

“3.9 ..the aim should be to improve energy efficiency as far as is reasonably practicable. The work should not prejudice the character of the host building or increase the risk of long-term deterioration of the building fabric…”
PRIVATE RENTED LANDLORD GUIDANCE

THE DOMESTIC PRIVATE RENTED PROPERTY MINIMUM STANDARD

Guidance for landlords and Local Authorities on the minimum level of energy efficiency required to let domestic property under the Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015

Originally published: October 2017
Updated: June 2018

From Historic England: Energy Efficiency and Historic Buildings (digital image by Robyn Pender)
THE SCALE OF THE CHALLENGE

According to BRE’s own literature, published by DECC

“Heritage buildings represent approximately 35% of the existing dwellings in the UK as a whole and a large proportion of solid wall buildings.

Published on DECC website January 2015 (long before Bonfield Review was commissioned)
SKILLS AND TRAINING for the 35%???

Level 3 SQA course delivered for CITB

ASTSOTV1
Recognise the age, nature and characteristics of older and traditional buildings

ASTSOTV2
Evaluate the appropriate options for the introduction of energy efficiency measures to older and traditional buildings

ASTSOTV3
Make recommendations and give advice on the introduction of energy efficiency measures in older and traditional buildings

Just 1 sufficiently qualified teacher volunteered
Just 208 trained so far  DROPS IN THE OCEAN!!!!
SIGNIFICANCE – HIGH (II*)
Capacity for improvement – low?
SIGNIFICANCE - and Competence???

EPC: “replace windows” - payback 32 – 63 years!!
Repairing / secondary glazing not considered
Significance –

and COMPETENCE???

1930s solid wall
Conservation Practices in a changing world

Ingval Maxwell

The heritage already exists in four dimensions – three being physical, and the fourth being that of time. All aspects need to be appreciated if their inherent significance and value is to be respected and retained.

Understanding what is behind the finished surfaces is fundamental

Addressing this difference requires practitioners to have a retrospective appreciation and understanding of the ways in which historic buildings were constructed in the past.

At the same time, they need to be alert and CPD-informed of how emerging technological influences and developments might be adopted and adjusted to be beneficial.

Appreciating a project’s plethora of individual historic elements and interpreting their role and function as they combine to create the entire building will be a significant challenge in creating an effective HBIM database. Inevitably, each case will vary in composition, form and detail.
Would you, could you, should you **insulate**?

Timber-framed construction

Peg-jointed – frame adjusts to changing heat and humidity

Traditional infill and lime / hair plaster also flexible
Traditional construction, repaired, is circular.....
“Salvage and make-up” using lime mortar allows fired materials to be re-used
ADAPTATION AND WELL-BEING, IN 12 YEARS?

Well-being Goals

- A globally responsible Wales
- A prosperous Wales
- A resilient Wales
- A healthier Wales
- A more equal Wales
- A Wales of cohesive communities
- A Wales of vibrant culture and thriving Welsh Language
CHALLENGES FOR ALL OF US……

• *Still the same problems, ever more urgent!*

• *How to raise Government awareness?*

• *How to change industry practices?*

• *How to minimise waste of money and carbon?*

• *How to achieve the skills and capacity needed?*

• *And all, at scale, in 12 YEARS??????*

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