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Commissioner
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NETHERWOOD
SUSTAINABLE FUTURES
Sustainability Governance Policy Practice



Land, Leadership, and Legacy: Building Climate and Nature Resilience into Land Management

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Introduction

In October 2025 Netherwood Sustainable Futures¹ was commissioned by the Future Generations Commissioner for Wales to provide a presentation at the [Ystadau Cymru annual conference](#) on how land management in the public sector could focus on future generations, while addressing climate resilience and nature recovery. This paper builds on the presentation and provides a written 'think piece' for asset and property managers and their colleagues in local government, health boards, and public bodies, to reflect on their current practice and ways to strengthen their approach to these two critical issues

This paper is intended as a foundational resource to enable the Commissioner's Office to focus on delivery of climate and nature resilience through asset management across Wales' public sector. This is a key aim of the Commissioner's [Future Generations Report \(2025\)](#).

The think piece draws on the author's 30-year career working in Wales, for local government, the third sector, Environment Agency Wales, as an academic and for the last 18 years as a consultant supporting the public sector clients on sustainable development and climate change. It draws on examples of recent work, focusing on infrastructure, assets, biodiversity, and climate adaptation to illustrate the opportunities where the public sector asset managers can strengthen its approaches to these issues as an integral part of the 'day job.'

The paper explores the following challenges for asset managers across Wales:

1. Managing land asset diversity for future generations
2. Adopting progressive approaches to land management
3. Factoring in climate resilience to existing systems and processes used by land managers
4. Achieving land carbon outcomes through asset management
5. Pursuing opportunities for nutrient management through development
6. Improving nature recovery through land management farming, and rural development
7. Adopting a whole organisation approach to achieve climate resilience and nature recovery outcomes

The following sections reflect on each of these challenges in turn.



1. Land Asset Diversity For Future Generations

Public bodies manage a wide range of diverse infrastructure, assets, and properties where they deliver multiple services to Welsh communities. Diagram 1 shows the wealth of land assets that public services need to manage on an ongoing basis.

This diversity presents a challenge and opportunity. The range and scale of Wales' public assets provide an opportunity to deliver multiple benefits for climate resilience, nature recovery, carbon sequestration and nutrient management alongside service, delivery, and functionality for current generations. Public bodies have collective agency to use a broader lens and set of values to manage their land assets than they do at present. Questions explored in the presentation were the extent of influence of public bodies on land management approaches in their 'patch'; and what outcome were public bodies seeking for future generations through their approaches to these assets.

Diagram 1. Managing Land Asset 'Diversity' into the Future

Local government and national park authorities

- Active travel networks
- Bridleways
- Brownfield and 'meantime' sites
- Building grounds
- Car parks
- Community assets (transfer)
- Country parks
- County farms
- Cycle routes
- Depots
- Grazing (common land)
- Harbours
- Industrial estates
- Landfill sites
- Nature reserves
- Open space
- Parks & formal gardens
- Playing fields and sports grounds
- Public rights of way
- Quarries
- Roadsides verges A & B roads
- School grounds
- Social housing
- Urban woodland
- Waste management sites

Welsh Government

- Brownfield and 'meantime' sites
- Building grounds
- Natural Resources Wales
- Forest estates
- National Nature Reserves

Land holdings of:

- University Health Boards and NHS Cymru
- Further and higher education
- Museums
- Sports Wales
- Fire and police services
- Housing associations

Third Sector Assets

- Building grounds
- Community assets (transfer)
- Country parks
- Farms
- Grazing (common land)
- Nature reserves
- Open space
- Parks & formal gardens
- Culture & heritage sites

Private Landowners

Estates:

- Farms
- Small holding
- Land Businesses
- Industrial Estates
- Landfill

Crown Estate

- Land
- Shoreline
- Seabed

Historic:

- CADW
- Royal Commission on Ancient and Historical Monuments Wales
- National Trust

Arguably, seeking outcomes that deliver climate resilience, nature recovery, nutrient management, and carbon sequestration through these assets ought to become a basic and a norm for bodies seeking to meet the needs of future generations, using the sustainable development principle set out the [Well-being of Future Generations Act](#). These outcomes may be achievable at no/low cost – but will require asset and property managers and leaders within organisations to adapt the frame of what their asset management strategies are seeking to achieve, beyond balancing the books and value for money.

Asset and property managers in public bodies have tools and levers to influence service managers across their organisations, through service planning and risk management, through site management planning and in the way that they undertake suitability and conditions assessments. Broadening the scope of what constitutes good outcomes for land asset management is a key step.

If we are going to be serious about tackling the climate and nature emergencies – then public bodies need to take a leadership role, despite shortages of capacity and funding. Engagement with others who have their own agency on land management assets and influence, the private sector for example, will become more important as the climate continues to change, nature comes under increasing pressure, and our ecosystem services are stretched. Many of the solutions to address climate risk, nature recovery and water quality concern landscape and catchment level action. Local authorities and others need to demonstrate effective practice on their own land assets if they are going to persuade other landowners to the same.

The diversity of land assets of the public sector and the complexity of the issues involved will mean asset and property managers working more closely on policy and funding with other parts of their own organisations. This is an opportunity for intra organisational collaboration where for example asset managers and biodiversity leads working together for funding bids to support nature recovery and nutrient management on land assets. This requires capacity for already stretched teams. Public sector leaders need to enable this collaborative work.

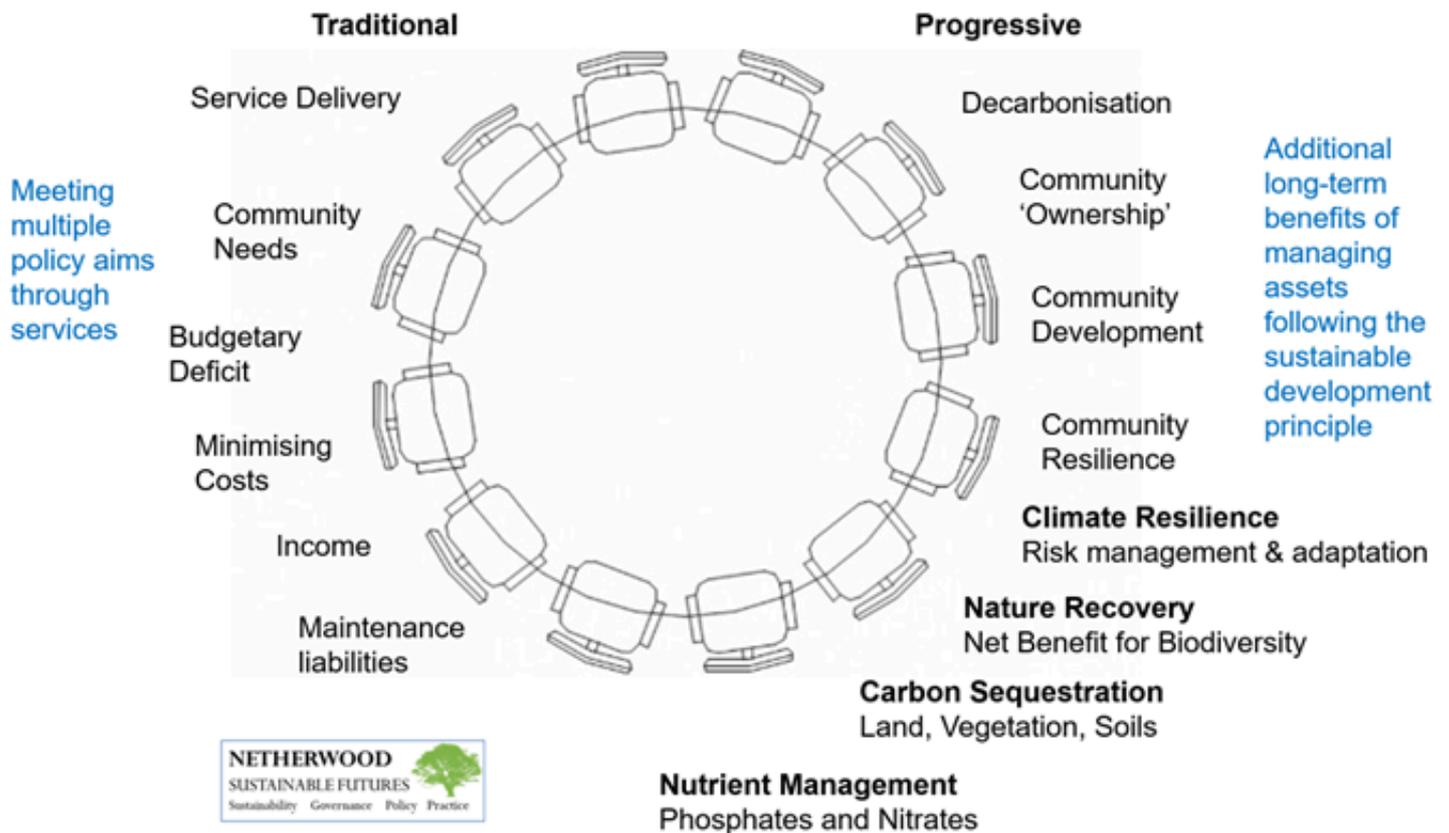


2. Adopting Progressive Approaches to Land Management

The conference presentation introduced Diagram 2 which illustrates the different drivers for decision making around land management assets. The left-hand side of the table illustrates the more traditional drivers for asset management – where assets meet policy aims through service delivery. The right-hand side of the table represent what has been termed 'progressive outcomes,' some of which are already being delivered by Wales' public land assets. Adopting progressive approaches will provide outcomes for both current and future generations.

Diagram 2. Key DRIVERS around the decision-making table

DRIVERS FOR DECISION MAKING



A key argument of the presentation was that that asset and property management, senior leadership teams and elected members need to value these progressive outcomes as an integral part of their decision-making and not a 'nice to do.' This requires leadership to encourage a cultural shift in spelling out that climate resilience, nature recovery, carbon sequestration, and nutrient management matter – and that decision-making and management of land assets will be scrutinised and called to account if these outcomes are not delivered. Ways of achieving this are picked up later in the paper.



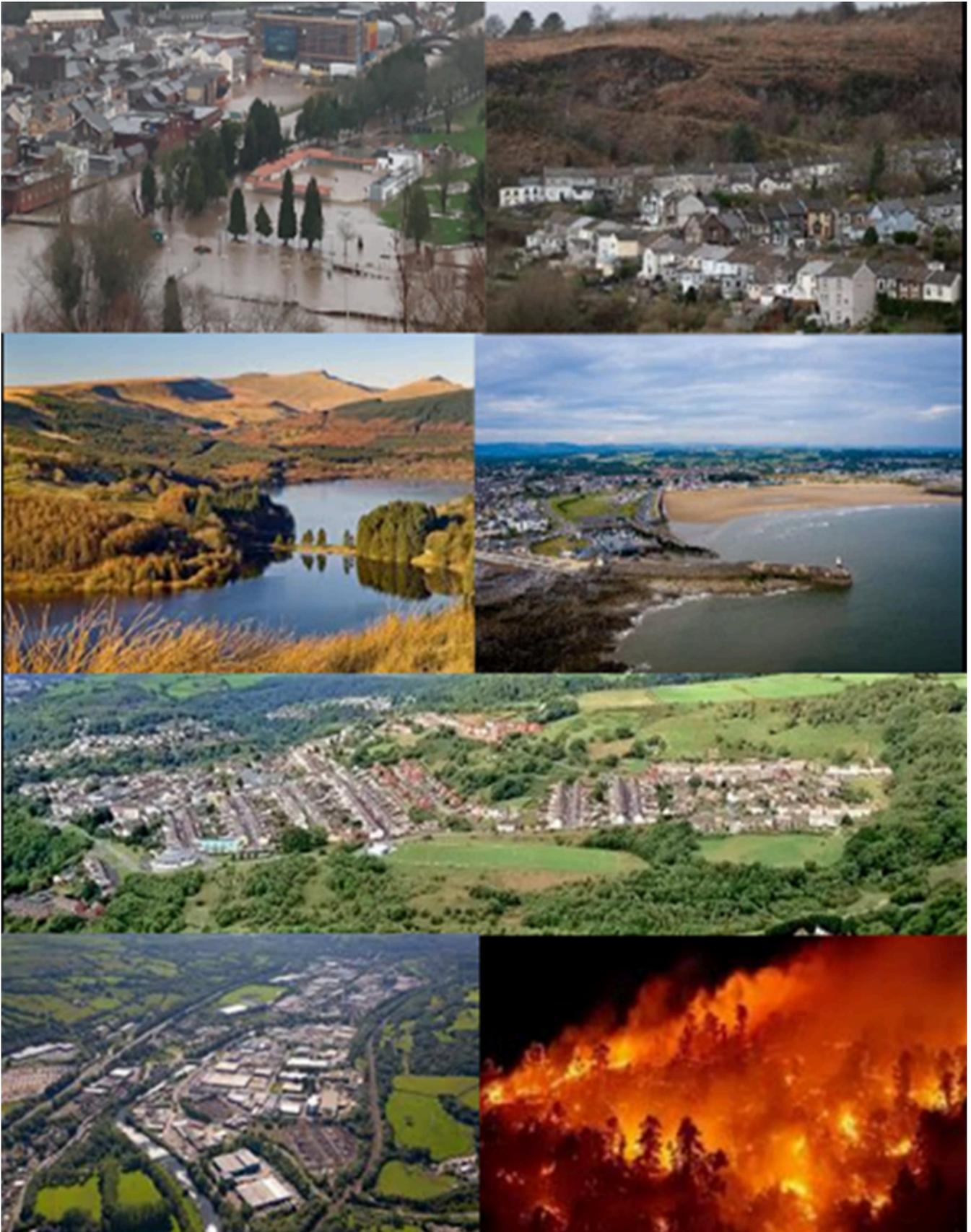
3. Climate Resilience

A strong focus of the presentation was on the relationship between public sector land management and climate risk and adaptation. This drew on the author's learning from work with public bodies, government and private and third sector and his academic research.

Experience from undertaking climate change risk assessments in Pembrokeshire, Cwm Taf Morgannwg, and elsewhere had highlighted that understanding vulnerability of land assets to cumulative impacts of combinations of risks is complex – and needs to be considered asset by asset, but also as an integral part of organisational Asset Management Plans. The diverse land assets under public body management will be impacted by combined effects of climate change in their own unique ways, depending on their location, topography, environs and inter-reliances. The presentation drew on work in Cwm Taf Morgannwg Public Services Board highlighting the potential risks from a post-industrial landscape in a changing climate, the effects of infrastructural pinch points, the vulnerability of essential infrastructure, utilities, and nature conservation interest.

Asset managers will need to manage these impacts and risks as they occur, recur, and compound over time on their land assets – which will in some cases inevitably affect their function, condition, and maintenance. They will also need to collaborate effectively with colleagues to identify where land management techniques can help to reduce climate risk, for example through effective vegetation management on slopes to reduce the risk of slope collapse.





The presentation illustrated this complexity by drawing on recent work for Pembrokeshire Coast National Park Authority on the climate resilience of the coastal path; a complex 180-mile asset which will experience increasing diverse, cumulative climate impacts along its length. Understanding climate risk involved engaging with wardens, specialist managers across disciplines and external partners, mapping and identifying sections where further work could focus on the likelihood of re-alignment and adaptation solutions. Public bodies in Wales will need to embrace the granularity of understanding climate risks to their land assets.

This and other commissions on climate risk have raised some concerns around asset management that Ystadau Cymru and others ought to consider as they begin to adopt climate risk management and adaptation as a core part of their work

Institutions a core part of the risk – neglecting to explore climate risk as part of public services exacerbates risk – it is unmanaged

Leadership complacency – on vulnerability with limited understanding of cumulative, combined impacts

Officer/manager reductionism – of climate risk as flood risk – there are a wide range of risks that need to be considered

Post-industrial legacy – the scale and breadth of risks that are likely to emerge at the post-industrial landscape is affected by climate change including vulnerabilities to land subsidence, mine water, slope stability, dispersed pollution from contaminated land

Limited frames of **organisational climate risk management** and for Local Resilience Fora to deal with repeated, cumulative impacts

Wildfire management – the limited strategic understanding and response to future wildfire management and its effects on land assets, including forest estates

Road and bridge networks – the vulnerability of networks that underpin all public services, and the interface of land with these networks, (tree fall and slope stability, road, and bridge condition)

Effective **decision-making and scrutiny** – the limited consideration to combined cumulative risks over time on public sector assets increases the likelihood of poor decisions locking in future risks

Political discourse – increasing levels of climate denial in political discourse, short term financial and political decision making inhibiting institutional responses

Effective asset management in a continually changing climate will be central to maintaining public services and community well-being. In the author's view, asset managers need to engage with this 'wicked issue' and shape discourse and adaptation. Asset managers need to develop their skills to ensuring liabilities and vulnerabilities to land assets are managed effectively and public land is used as effectively as possible to help Wales adapt to this inevitable change. This should be viewed as core work.

4. Land Carbon

The presentation highlighted how public bodies can achieve carbon sequestration from their land assets alongside other outcomes for land management. Carbon can be sequestered and stored in different land, vegetation, soils and sediments over time. Public sector bodies can encourage this process in the land and built assets that they own, manage, lease, and influence.

Sequestering and storing carbon in this way helps to offset carbon dioxide emissions that contribute to climate change. Work by the author in 2024 with WLGA and other partners provided local authorities with management guidance and measurement tool to support this activity².

Effective management of public sector lands' vegetation and soils are a means to tackle a key aspect of the climate emergency. Carbon sequestration is an ecosystem 'service' that needs a greater profile in public sector decision-making.



Establishing land carbon as a legitimate outcome in its own right for land assets in the public sector should be achievable. While it is not the 'golden bullet' to offset residual carbon emissions from public bodies (there simply isn't enough land available), it should be possible for local government and other public bodies to establish baselines for carbon held in their land assets, consider this as part of management of individual assets and as part of their asset management strategies. While outcomes will be site specific, a collective effort to acknowledge, measure and plan for sequestration through vegetation and soil management could make a significant contribution. County farms have a role in doing this, meeting the aims of the Sustainable Farming Scheme, however the wide range of assets in Diagram 1 also have a role to play.

Progressing this area would mean capital programmes of public bodies, asset and property strategies, place plans, asset transfer and management and maintenance regimes aim for land carbon outcomes. This is not about getting overly technocratic on measuring change or over-egging land carbon but making this ecosystem service part of the discourse in asset management arenas. The public sector also has a strong role in enabling others to achieve land carbon outcomes through supplementary planning guidance and place planning. It should be signalling to partners that this is the 'right thing' to do as an integral part of planning and decision-making.



5. Nutrient Management

Public sector land also has a role in effective nutrient management. Wales is experiencing increased 'loading' of nutrients (phosphorus and nitrates) into its rivers which is affecting biodiversity, nature conservation, health, water quality. Agricultural and road run-off and contamination from wastewater are pushing natural systems to their limits and in some areas of Wales this is limiting new asset building as additional contaminants from development may breach legal limits. Land asset management from public bodies has a key role to play to minimise nutrient loss into soils and water courses; and to provide natural solutions to nutrient run-off.

On a practical level, vegetation and water management can help manage nutrient loading through the introduction of reed beds, swales, buffer strips, sediment traps. Planting of hedgerows can help to 'offset' nutrient loading from development. This type of intervention also provides outcomes for biodiversity and connectivity in a changing climate. These interventions should not be viewed, as is often the case, as a maintenance problem, adding costs – but as a positive solution with multiple outcomes.

In a similar way to land carbon, in the author's view this is underplayed in current approaches to land management in the public sector. Asset managers need to understand where and how this affects their asset portfolio and integrate this into decision-making and forward planning. Nutrient Management Boards have been set up to develop collaborative approaches to this problem. A key question going forward is how can asset managers engage effectively (and proportionately) with landscape and catchment level problem solving like this – with colleagues from other departments and with partner organisations?



6. Nature recovery

There are new mechanisms that are likely to have far reaching implications for the way we management publicly owned land in Wales; the Sustainable Farming Scheme is aligning agricultural payments with climate, biodiversity, nature recovery outcomes. Land-owners and farm businesses can sign up to universal and more ambitious optional and collaborative commitments. How will Council's agricultural holdings contribute to this shift? Will County Farm lease holders be required to adopt the most ambitious commitments?

New commitments for development via Planning Policy Wales (2024) focus on development achieving Net Benefit for Biodiversity. This means that planning proposals need to demonstrate that they have assessed potential impacts on habitats and species and approached the development to minimise impact, mitigate or restore features, or compensate on or off site – to achieve long term Net Benefit for Biodiversity via a Stepwise approach.



How might a proactive asset manager approach this in relation to the whole property portfolio? Can they identify appropriate land with the Council's biodiversity team to provide compensatory off-site improvements should the need arise? This new obligation will be relevant to work on regeneration, capital programmes, and new development within the Council property portfolio. Asset managers will need to develop strong proactive links with countryside and biodiversity teams and ecologists, upskill themselves on this issue and develop proactive programmes to address this new obligation.

The public sector in Wales already has a legal duty to enhance its approach to biodiversity through its functions and services under Section 6 of the Environment (Wales) Act. 'Section 6' Biodiversity reports are required every few years to fulfil this duty. In the author's opinion an effective asset management function under this duty would be able to show how, nature recovery and Net Benefit for Biodiversity are one of the key outcomes of asset management at a corporate level (not a side issue); integral to evidence gathering on the condition of land assets; and considered as parts of decisions to retain, maintain, transfer or sell assets.

These are strong levers to specify nature recovery outcomes in public sector approaches to land management. What can asset managers achieve with the help of their biodiversity colleagues in this space?





7. Whole Organisation Approach

Much of the author's work with the public sector focuses on whole organisation approaches, involving senior leadership teams as well as middle management and operational staff.

Diagram 3 highlights the institutional elements that these groups often feel can 'up the ante' and enable them to act, to build business cases for action and justify work on climate change, nature recovery, and sustainable development. This frame is often used to challenge senior leadership teams on what inhibits progress. Attendees at the conference were shown this diagram and asked what they needed to enable them to spend more time and more focus on climate resilience, nature recovery, nutrient management, and carbon sequestration. Asset management teams are stretched, time is difficult to find, if the answer to the above question is money, what would it be for?

It is likely that asset managers will need more senior level advocacy or 'permission' to address these issues in a coherent and consistent way. This will need to come for CEOs, Senior Leadership Teams and elected and board members. Consistent framing of why these issues matter will be needed in reports, strategies, and service plans.

Diagram 3 – Establishing a whole Organisation Approach – What do Asset Managers Need to be Progressive?

Challenge/Scrutiny
(Framing Questions for Leaders)

Planning Forward
(Opportunities in Forward Work Programmes: Strategic, Capital, Operations, Skills, Comms)

Financial Implications
(Medium Term Financial Planning – local government settlement)

Capital Programme
(Explicit consideration of progressive outcomes)

Development Control
(Explicit consideration of progressive outcomes)

Transfer and Disposal
(Requirements of private and third sector deliverers)

Corporate Commitment
(Explicit Requirement)

Guiding Principles
(Scope of Influence)

Coordination and Capacity
(Advice)

Plan or programme
(Actions, deliverables, outputs)

Leadership
(Managerial And Political Advocacy, Challenge)

Service Business Planning and Redesign
(Embedded Process)

Risk Management
(Accountability & granularity)

Business Case Development
(Explicit as Part Process)



Asset managers will need to develop a clear and concise rationale to help them to engage across the organisation on these issues, with the support of colleagues with expertise. Evidence will need to be built on opportunities and risks across the land property portfolio.

Asset managers will need to be adept at repetition – consistently advocating for these outcomes in the different arenas they work. Committees, decision makers, and finance teams will need to understand the value of achieving outcomes in these areas. Effective cross-silo working will need to be developed – particularly between countryside/biodiversity and ecology teams and asset and property managers who in the past have often been at odds on what to do with land – and the different values they place on it.

All of the above will need coordination and leadership. Asset managers need to be enabled to do the right things by leaders and people with the right expertise. A shift of this kind will not be achieved by accident or incrementally and needs to be carefully thought through.

8. Summary and Conclusions

A final question raised at the November conference was how asset management might look as a profession in 5 years-time – will it have successfully incorporated these issues into everyday working? Will we be clear about risks and opportunities for addressing climate risk and nature recovery through the different strategies and arenas that help to manage the public land resource? Having spent 30 years working in this field, integrating these critical issues into the asset management, is long overdue.

The author's view is that a lot of progress can be made given the expertise available within Wales' public sector and in partner organisations, despite funding constraints. Carving out time to develop strategic and institutional approaches to this issue would be time well spent – enabling better connection between experts, giving asset managers licence and 'permission' to adopt different lenses for asset management planning and delivery. Asset managers need to be enabled to lead.

Further work between Ystadau Cymru and the Office for Future Generations in this space is timely, welcome, and urgent. I hope that this paper will be useful to help to frame some of the issues involved and can be used as a touchstone to inform these discussions.

References

[1] [Dr. Alan Netherwood \(Netherwood Sustainable Futures\)](#) is a specialist, Wales-based consultant on climate change, with a wide range of experience of advising and challenging institutional approaches to land asset management as part of his work with government, the public sector, and local authorities. He is the author of Wales Climate Risk Assessment CCRA3 and supported the UK Climate Change Committee on the UK-wide Climate Risk Assessment in 2022. He has run a 3-year Climate Leadership Programme for WLGA; including approaches to decarbonisation, climate risk, and land carbon; worked with Ynys Mon and Powys councils, Public Health Wales and the RNLI on corporate approaches to climate change, and with Pembrokeshire, Cwm Taf Morgannwg and Powys and Gwent public services boards on climate risk including complimentary approaches to nature recovery. All of these commissions focus on infrastructural and asset based factors. Support has also been provided to Bluestone National Park Resort, Ministry of Defence amongst others on their strategic programmes for climate risk. He has also been a leading academic in Wales on climate change as an Honorary Research Fellow in Cardiff University focusing on climate change governance – how institutions organise themselves to address climate risk and adaptation.

[2] The guidance is available for local authorities and National Parks via the Welsh Local Government Association contact Jean-Francois Dulong: jean-francois.dulong@wlga.gov.uk

