



## RHONDDA CYNON TAF COUNTY BOROUGH COUNCIL

### CLIMATE CHANGE CABINET STEERING GROUP

16<sup>TH</sup> NOVEMBER 2020

#### NATURE'S ASSETS

**JOINT REPORT OF THE DIRECTOR PUBLIC HEALTH, PROTECTION & COMMUNITY SERVICES AND THE GROUP DIRECTOR PROSPERITY, DEVELOPMENT & FRONTLINE SERVICES IN DISCUSSION WITH THE CABINET'S CLIMATE CHANGE CHAMPION (COUNCILLOR RHYS LEWIS)**

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#### **1. PURPOSE OF THE REPORT**

- 1.1 The purpose of the report is to consult the Steering Group on issues relating to Nature's Assets and the climate and biodiversity emergencies.

#### **2. RECOMMENDATIONS**

It is recommended that the Steering Group:

- 2.1 Comment on the issues raised in this report, and
- 2.2 That the feedback and comments of the Climate Change Cabinet Steering Group are reported to Cabinet for their consideration.

#### **3. REASONS FOR RECOMMENDATIONS**

- 3.1 To enable the committee to consider the opportunities to maximise carbon storage through the natural assets in Rhondda Cynon Taf and advise the Cabinet accordingly. The issues raised could have implications for future Council policy, priorities and expenditure.

#### **4. BACKGROUND**

- 4.1 The landscape and wildlife of the South Wales Valleys are unique in Southern Britain, boasting a huge diversity of habitats and species occurring in close proximity and accessible to a large urban population. The biodiversity rich landscapes of Rhondda Cynon Taf lie at the centre of these riches, greatly valued by local people and a fundamental part of our shared sense of culture, place and community<sup>1, 2</sup>.

4.2 'Action for Nature' is the Plan to protect and enhance the wildlife and biodiversity of Rhondda Cynon Taf. It was initially developed in the late 1990's, by a partnership of local people and organisations who had an interest, passion and knowledge of local wildlife. The first plan was published in 2000 and it was reviewed by the Partnership in 2009. The Plan is being reviewed again in the light of new legislation and changing circumstances. The Partnership continues to be passionate and has continued to evolve, regularly welcoming new participants. Individuals, community groups, specialist wildlife organisations (like Butterfly Conservation), local specialist groups (e.g. Glamorgan Fungi Group, The Coal Spoil Initiative), Natural Resources Wales and the Wildlife Trust for South and West Wales are well represented.

4.3 Keep Wales Tidy has provided a long-term link with local community groups, many of whom take an active part in the partnership and in practical projects. Recent grant funding from Welsh Government to the Welsh Council for Voluntary Action (WCVA) has provided a 1.5 day a week post for the Partnership in RCT until March 2023. The grant aims to extend the Partnership to include other public bodies like the health sector, business and the wider voluntary sector. Working with Interlink<sup>3</sup>, the community voluntary council for RCT, will be an important part of this project.

#### 4.4 **A Rhondda Cynon Taf Strategy for Nature's Assets**

4.4.1 The unique landscape and wildlife assets of Rhondda Cynon Taf means that the approach we adopt to the Climate and Nature emergencies should reflect these special circumstances. The Rhondda Cynon Taf landscape is rich in priority 'natural' habitats, undisturbed soils and peat bogs, all of which are important 'carbon stores'<sup>4</sup>. We are lucky to have such a wealth of 'natural' carbon solutions. Across much of the British landscape, these were lost to the intensive land management practices of the recent past. In addition, the RCT population has one of the lowest ecological footprints in Wales (see appendix 1). The RCT area is also unusual in that a large area of the County Borough is in public ownership, including the Welsh Government forest estate as well as many Council owned sites, and large areas of green space associated with new developments. Therefore, in Rhondda Cynon Taf we have opportunities for natural solutions that are not available in other places.

4.4.2 Measuring carbon storage and the way carbon and methane (a more powerful but shorter-lived greenhouse gas) move through the environment is extremely complex, and is the subject of much on-going research and investigation. However, the proposed priorities for carbon storage, based on basic principles of the carbon cycle (see appendix 2) provide an established framework for action.

- Protect existing carbon stores through conservation of our wealth of semi-natural habitats and undisturbed soils;
- Restore degraded peatbog and associated habitats;
- Promote an expansion of urban green infrastructure;

- Encourage the expansion of native woodland by natural regeneration;
- Integrate carbon storage solution with conservation and recognition of our existing biodiversity, landscapes and cultural assets.

4.5 The following sections explore how these priorities can be built into the Council's work.

#### 4.6 **Existing carbon stores**

4.6.1 More than 70% of Rhondda Cynon Taf is countryside and this is already storing a large amount of carbon. Undisturbed soil, especially soils with a high organic matter content with well-established natural or semi-natural vegetation cover (which includes not just woodland, but old grasslands, heaths, wetlands, bogs and the valleyside ffridd) provides a stable carbon store for the long term. These complex habitat mosaics also hold a huge part of the richness of RCT's native biodiversity. We have huge areas of priority habitat and most of our agricultural land is permanent pasture. Losses of this carbon will occur when ground is ploughed (e.g. for crops or to reseed grass) or if the ground is built over for houses, roads, commercial development etc. Protecting those soils from disturbance is a key action; even tree planting can release stored soil carbon.

4.6.2. How land is managed can also affect stored carbon. Removing soil or vegetation (including timber), wild fire, soil compaction and soil erosion all reduce stored carbon. Re-wetting peaty soils (which contain a lot of carbon locked up in organic material), conserving natural priority habitats, allowing (where appropriate) natural regeneration and natural processes all promote carbon sequestration.

4.6.3 The Local Development Plan plays a significant role in directing development to appropriate sites minimising the impact on the wider countryside. The draft National Development Framework published by Welsh Government for consultation in 2019 aims to focus new development in existing settlements. Welsh Government is also promoting the energy hierarchy that prioritises demand reduction, energy conservation and renewable energy sources over fossil fuel extraction (coal and gas).

#### 4.7 **Peatbog restoration**

4.7.1 The most effective way to increase carbon sequestration in RCT would be to restore the many degraded peatbog and associated heathland and marshy grassland habitats that occur on the relatively flat hilltops above the valleys. Where anaerobic (oxygen free) wet conditions can be restored, the actively accumulating peatbogs and waterlogged wetlands that develop are very effective as carbon stores. The sphagnum mosses that form the peat in peatbogs grows slowly, but the carbon and biomass they accumulate in their lives is stored when they die and form peat, and is kept from release back to the atmosphere. Ancient peat bogs still safely store carbon originally captured from the atmosphere thousands of years ago. Conversely, peatbogs that are

degrading may be releasing carbon into the atmosphere contributing to global warming.

4.7.2 The Pen-y-Cymoedd windfarm will provide a 25-year landscape scale demonstration project of how to successfully restore a very large area of peatbog and associated habitats which lies between and around the turbines. £3m from the developers will contribute towards removal of conifer trees, blocking ditches, habitat management and monitoring the impact as part of the planning consent. The Heritage Fund has recently announced funding for the Lost Peatlands project to extend the scope and involve local communities in the restoration. Other benefits from the peatbog restoration include increased water storage in the uplands, potentially reducing flood risk in urban areas downstream and reducing wild fire risk in dry summers. In addition, peatbogs are an internationally rare habitat for which the UK and Wales have a global duty to protect. As our own version of the rain forests, restoring our peat bogs will benefit a unique range of mosses, plants and animals that depend upon them. There are at least 6 other long-term peat bog restoration schemes in RCT linked to green energy planning permissions. Something in excess of 700 hectares of peat bog restoration is achievable in this way. In addition, Natural Resources Wales (NRW) are also undertaking two peatbog restoration projects on the forest estate in Rhondda Cynon Taf at Mynydd Ton and Castell Nos. There is huge potential to undertake more of this work and an urgency to commence this in areas where the current forestry is leading to significant degradation of the remnant peatlands<sup>4</sup>.

## 4.8 Urban Green Infrastructure

4.8.1 Inevitably, carbon storage opportunities are more restricted in urban areas but net gains are more likely to be achieved. Urban greening, often called 'Green Infrastructure' can offer multiple benefits to residents (aesthetics, air quality, play space, reduced flooding, active travel etc.) as well as storing carbon. Managing urban green infrastructure to maintain stored carbon and the other benefits will also be important and some of the challenges this poses are considered in s4.13 below.

4.8.2 Rhondda Cynon Taf has some of the highest urban tree canopy cover in Wales (RCT average 18.5% in 2013, Wales 16.3%) but surveys by NRW show that we are losing larger trees from the Victorian and Edwardian era<sup>5</sup>. Some built up areas have lower levels of tree cover (e.g. Brynna/ Llanharan is below 10%) and these should be the priority for expanding cover. In addition, many of our Parks and Cemeteries have aging tree populations, and developing a new urban tree-scape for the twenty-first century will provide multiple benefits. Green Infrastructure to store carbon may not be restricted to trees. Green roofs and walls, gardens, grass playing fields and pitches all contribute. The Wildflower Grassland Management Policy is a recent example of the Council's work in this area where reduced grass cutting and biodiversity enhancement for wildflowers and insects provides additional environmental and social benefits. The biggest net gains for carbon sequestration will be made where soil and growing plants can replace hard surfaces for the long term.

4.8.3 Green/ Blue Infrastructure has a role in reducing flood risk in towns. Rain gardens, porous surfaces and sustainable drainage systems all contribute. This is the key driver behind the introduction of Schedule 3 of the Flood and Water management Act 2010 which requires all new construction work over 100m<sup>2</sup> to require SuDs approval prior to the commencement on site with a view of managing the local flood risk whilst ensuring the naturalisation in the urban and rural environments. The requirement also addresses the enhancement of water quality, amenity, biodiversity and future maintenance of green/ blue infrastructure to ensure future generations can benefit from the development. The website has information related to RCT's Sustainable Drainage Approving Body (SAB).<sup>6</sup> A number of schemes for increasing tree cover in Parks and Cemeteries and for surface water management have been recently submitted for grant funding. Grant funding from schemes such as 'Local Places for Nature' and 'Greening Public Estates' provides opportunities to use our local parks and cemeteries as a first step towards urban tree planting thus enabling local communities to benefit directly by improving the urban landscape on their doorstep.

4.8.4 Again, the new LDP will provide opportunities to promote Green Infrastructure, as this is a new feature of Welsh Government planning guidance (PPW10) published in 2018.

#### 4.9 **Expansion of native woodland by natural regeneration**

4.9.1 Both the UK and Welsh government have priorities for increasing tree cover to sequester more carbon. Finding ways to meet these targets without damaging our existing mosaics of rich biodiversity (and carbon storing) habitats will be challenging if we only consider tree planting as a solution. Rhondda Cynon Taff already has a much higher level of tree cover (about 33%) than other parts of Wales or the UK. Because of the extent and diversity of semi-natural habitat in Rhondda Cynon Taf, planting trees in the countryside for carbon sequestration may not be appropriate in many circumstances. In addition, woodland cover has naturally expanded significantly over the past fifty or more years and is likely to continue to expand due to the processes of natural regeneration. In RCT low intensity land management and our wonderful warm, wet climate provide ideal conditions for native trees to naturally seed and grow.

4.9.2 Natural regeneration results in 'the right tree in the right place' more so than planting. The trees that develop are from the local seedbank and are better adapted to local conditions. Regeneration avoids introducing tree diseases, requires no plastic tubes or stakes and no fertiliser, herbicides, pesticides, watering or strimming and it is free! As woodland cover develops, natural regeneration create an important succession of wildlife rich habitats from tall grass through to scrub and then woodland. Although initially a little slower, natural regeneration quickly catches up and can over-take growth of planted trees. Ultimately, natural regeneration realises woodland cover every bit as quickly as that achieved by tree planting.<sup>7, 8, 9, 10, 11</sup>

- 4.9.3 Some areas of Council owned land are let for commercial grazing, but much of it is in conservation management, with minimal intervention to natural processes. Appropriate management of Council estate is however important if we wish to preserve and conserve the whole range of our flora and fauna. Therefore, conservation grazing and biodiversity grass management are key biodiversity actions. However, the low intensity management of conservation grazing often encourages tree growth around the edges of sites, and conservation grass cutting areas often include areas, which regenerate to tree cover. Indeed, the Healthy Hillside project is a good example of this. Initial pilots in Rhondda Cynon Taf are now being extended with funding from Welsh Government grant. Working in collaboration with Natural Resources Wales, the Fire Service, the Wildlife Trust and many others, the project aims to bring sites at risk of wildfire into management, typically using conservation grazing. Once the risk of fire is removed, woodland cover will significantly increase as part of the resulting patchwork of managed habitats.
- 4.9.4 Managing coal spoil tips to maintain public safety and biodiversity value, in particular for pollinators is another challenge. Bare ground and open flower-rich habitats are required for many of the insects (including a wealth of pollinators) that make these habitats so special, as well as for their unique lichen and fungi communities. Colliery spoil sites (including many of the 1970s and 80s reclaimed sites) are proving to be biodiversity hot spots with habitat and species assemblages that are unique to South Wales. Planting trees on colliery spoil may seem to offer opportunities to increase tree cover, but in doing so habitats of extremely high biodiversity and immense cultural value may be lost. In addition, until tips have aged sufficiently to develop deep enough soils, tree planting will require intensive ground preparation and importation of growing material; both of which will involve an associated carbon footprint, biodiversity loss and potential source of erosion. Tips do eventually start to naturally scrub over and develop woodland, but only when they have equally naturally developed soils capable of doing so. Managing scrub to retain some open ground is now becoming an important management consideration on some of our oldest and rarest remaining Victorian and Edwardian Tips<sup>12</sup>.
- 4.9.5 The proposed changes to public funding for the agriculture industry, post Brexit, are likely to see potential for increased woodland cover in RCT. It would be encouraging if 'natural regeneration' options were available to farmers in appropriate locations such as RCT. It is also hoped that any future schemes ensure that there is full recognition of the multiple benefits and value of the existing natural and semi-natural habitats within our landscapes.
- 4.9.6 Commercial forestry, where tree planting is designed to produce a crop that is removed, does not increase carbon sequestration. The aim is to balance tree removal with replacement over the life of the crop. For a given land area, carbon sequestration is likely to be slightly negative due to the periodic impacts of repeated soil disturbance, drainage and operational inputs. This can still be beneficial where the timber is used as a replacement for more carbon-intensive materials, such as coal, bricks or plastic.

## **4.10 The water environment**

- 4.10.1 The water environment is critically important for biodiversity and is another of 'natures assets' likely to be affected by climate change. Flood risk is one of the main areas for consideration.
- 4.10.2 In the 2018 UK climate impact programme, the revised projections highlighted the increasing risk of flooding developing as a result of climate change. These new projections for flood risk will be reflected in Welsh Government's draft 'National strategy for flood and coastal erosion risk management in Wales', due for publication in 2020 and are recognised in the outline for the new RCT corporate plan.
- 4.10.3 The restoration of upland peatbogs for carbon sequestration could also help to mitigate increased storm frequency and potentially higher rainfall by storing more water in the uplands. More generally, flood risk can be mitigated by changes to land management in catchments upstream of 'at risk' communities, often called Natural Flood Risk Management (NFM). The Healthy Hillides project will contribute towards NFM in some places and potentially, aspects of Welsh Government proposals for future agriculture support may contribute.
- 4.10.4 The Council produces a Flood Risk Management Strategy<sup>13</sup> and this promotes NFM in appropriate locations. An example of a Rhondda Cynon Taf led project is at Cwmaman<sup>14</sup>. Natural Resources Wales have a pilot project at Cwmparc with the introduction of woody dams into the stream to slow the flow in addition to the peatbog restoration projects mentioned above.

## **4.11 Air Quality**

- 4.11.1 An earlier report has outlined the causes and impacts of poor air quality in Rhondda Cynon Taf. It should be remembered that the natural world is affected by air pollution as well as people. For example, vehicle exhausts (in particular nitrogen dioxide) affects soils and contributes to detrimental changes in local biodiversity. This is not well understood. The only detailed investigation in RCT relates to European protected sites near the heads of the Valleys road. The use of Green Infrastructure to ameliorate air pollution is not straight forward and much bigger impacts will result from reductions in vehicle emissions. Using Green Infrastructure to promote and encourage active travel as a substitute for car journeys will contribute to improving air quality. The earlier Air Quality report (appendix table c) included examples of Green Infrastructure to tackle specific issues.

## **4.12 Landscape Strategy linking nature conservation and people**

- 4.12.1 Rhondda Cynon Taf is a fantastic treasure trove of landscapes, habitats, flora and fauna. A biodiversity that has a rich cultural basis and is strongly tied to the complex geology and geomorphology of the County Borough. RCT is also a place with many expert, self-taught naturalists, local historians, and environmentally concerned and active people and groups. In RCT people and communities live within and surrounded by wildlife-rich habitats (the backdrop to our daily lives) and for everyone in RCT nature is only a short walk or stroll from their door step. An initiative that is currently being developed aims to link people and groups into a network of biodiversity rich sites, and to engage with people to visit, enjoy, record, and help to manage these sites to maximise their biodiversity and promote active communities. By developing a 'landscape scale' project, large scale funding such as the Heritage Lottery might be attracted. Initial discussions between Council staff, the Wildlife Trust, Butterfly Conservation and number of local groups has established support for the idea.
- 4.12.2 Through the implementation of its planning function, the Council has secured a significant network of ecological mitigation sites across the County Borough. Some of these sites are Council adopted and have land management funding associated (from S106 agreements), while others are developer or management company owned but have specific S106 biodiversity management commitments and requirements. There is also a network of Council-owned and managed countryside and parks sites, cemeteries and land reclamation sites, together with partnership owned nature reserves and Community Council sites. When viewed on a map these commitments and opportunities form a network of often closely adjacent sites, linking communities with the wider countryside. It is a very significant resource of both wildlife-rich habitats and an amazing opportunity for people to become actively involved in helping to look after, care for, understand and interpret their own environment. We already have community groups with interest in a specific site who would welcome the opportunity to share expertise and volunteers with similar groups both locally and across RCT. In addition, there is a network of local people with a keen interest in engaging in both their local patch and the 'bigger picture'. Therefore a priority 'Action for Nature' action is the development in 2020/21 of a pilot 'living landscape project' within RCT. If successful, this would see a major new approach to biodiversity conservation and community engagement in RCT with long-term sustainability and continued biodiversity improvement.

## **4.13 Challenges**

- 4.13.1 Some of the opportunities to promote Nature's Assets in the Council's response to Climate Change have been listed above. New legal duties and a higher profile for the Climate and Biodiversity emergencies provide major opportunities to move this agenda forward. These welcome opportunities come after a protracted period of funding difficulties for all public bodies. To realise these new opportunities consideration needs to be given to staffing numbers, expertise and revenue funding, and the need to build capacity in

local authorities, Non-Government Organisations (NGOs), the specialist voluntary sector, NRW and Welsh Government. Close partnership working will be very important.

- 4.13.2 Current capacity will limit policy development, practical management works and engagement with the public and schools. The Biodiversity Duty (reported in Nov) has resulted in a welcome increase in the attention paid to ecology across Council services, but this poses challenges when the staff resource (1 ecologist) remains the same. The new sustainable drainage law and the new requirement for biodiversity enhancement by planning applicants are typical of increasing demand for the ecologist's input.
- 4.13.3 If the Council and its partners are to take forward this important agenda and develop some of the initiatives identified in this report, there will be a need to build resources, expertise and create additional capacity in both the Council and other partner organisations.
- 4.13.4 The Council will explore the potential for a Graduate Officer post to work with the ecologist and there may be opportunities for additional Apprentice roles to undertake work on countryside and grassland management. There are currently proposals to support an apprentice on tree management work and an increase in the revenue budget for tree works. The Council may also wish to consider additional resources to increase training and to support the mapping and data sets required to support the living landscape pilot, providing evidence of natural regeneration.
- 4.13.5 There is demand for increased support for environmental education, particularly in schools in Rhondda Cynon Taf. A graduate post, shared between Education and Streetcare is planned to work specifically with secondary schools. Similar provision to support education for sustainable development and global citizenship in primary schools may also be required.
- 4.13.6 Natural Resources Wales have a limited environmental education resource, which supports a network of Outdoor Learning Groups (including one for RCT and Merthyr) and Keep Wales Tidy promote Eco-Schools, in which many RCT schools participate. The RCT Education and Inclusion Services are currently developing a pilot project of up to seven schools that aims to enhance school grounds to promote biodiversity and outdoor learning.
- 4.13.7 In taking forward any recommendations arising from the recommendations of the steering group, the Council will need to quantify and consider the necessary resource implications.

## **5. EQUALITY AND DIVERSITY IMPLICATIONS**

- 5.1 There are no equality or diversity implications as a result of the recommendations set out in the report.

## **6. CONSULTATION / INVOLVEMENT**

- 6.1 This report explores issues, some of which have been discussed by the Local Biodiversity Action Plan partnership and specifically with Natural Resources Wales.
- 6.2 The views of this Steering Group will make an important contribution and inform the deliberations of Cabinet

## **7. FINANCIAL IMPLICATION(S)**

- 7.1 As this report covers a number of new policy areas for the Council, there may be financial implications arising from future implementation. Some projects described, such as the 'Healthy Hillside' and 'Lost Peatland' projects have already obtained grant funding. There are likely to be some short-term Welsh government capital grant opportunities for 2020/21, in particular relating to Green Infrastructure. Where no funding is currently available, the Cabinet may require additional information before considering whether and how these issues should be addressed.

## **8. LEGAL IMPLICATIONS OR LEGISLATION CONSIDERED**

- 8.1 The Environment (Wales) Act 2016 is relevant. Part One covers the Sustainable Management of Natural Resources and includes the Biodiversity Duty (S6). This part also sets the context for policy and action for the Welsh Government and Natural Resources Wales. Part Two considers climate change and informs Welsh Government policy in this regard.

## **9. LINKS TO THE CORPORATE AND NATIONAL PRIORITIES AND THE WELL-BEING OF FUTURE GENERATIONS ACT.**

- 9.1 The discussion of Natures' Assets contributes to the Council's priority to 'build a sustainable County Borough' as set out in the Council's Corporate Plan 2016-2020. It will contribute to the discussions about the next Corporate Plan for the period 2020 to 2024, which is likely to contain further consideration of the Climate and Biodiversity Emergencies.
- 9.2 Consideration of Natures Assets must reflect the five ways of working in the Well-being of Future Generations Act. In particular, this must be a long-term consideration, focused on preventative and precautionary action. It will contribute specifically to the Resilience and Global Responsibility goals of the Act, but in the longer term it could have implications for all the goals.

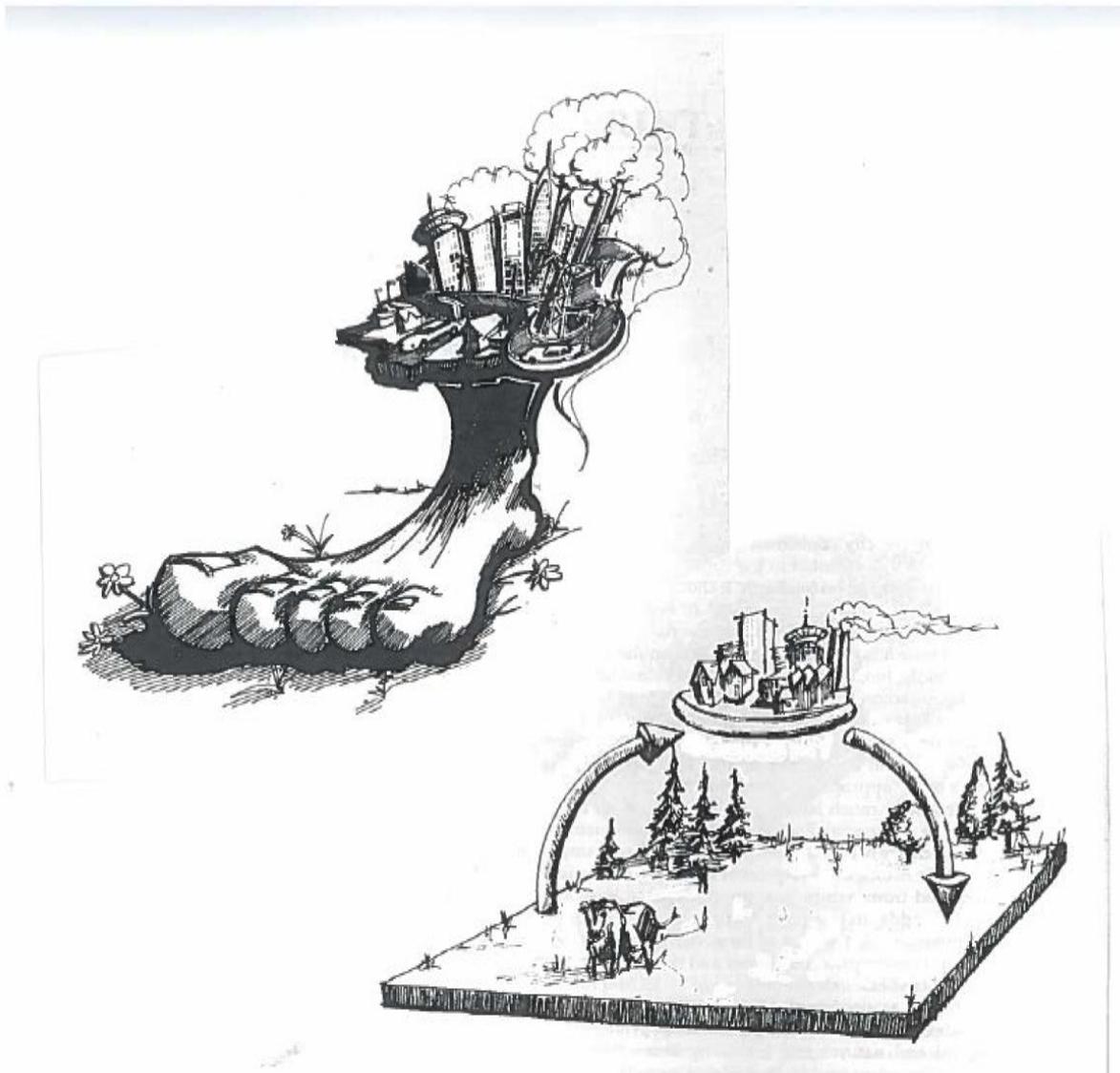
## **10. CONCLUSION**

- 10.1 Members of the Climate Control Cabinet Steering Group are requested to consider the information presented in this report and provide their observations to Cabinet.

## References

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## Appendix one: Ecological Footprint



'What is an ecological footprint?

Think of an economy as having an 'industrial metabolism'. In this respect, it is similar to a cow in its pasture. The economy needs to 'eat' resources, and eventually, all this intake becomes waste and has to leave the organism- the economy-again. So the question becomes: how big a pasture is necessary to support that economy – to produce all its feed and absorb all its waste? Alternatively, how much land would be necessary to support a defined economy sustainably at its current material standard of living?'

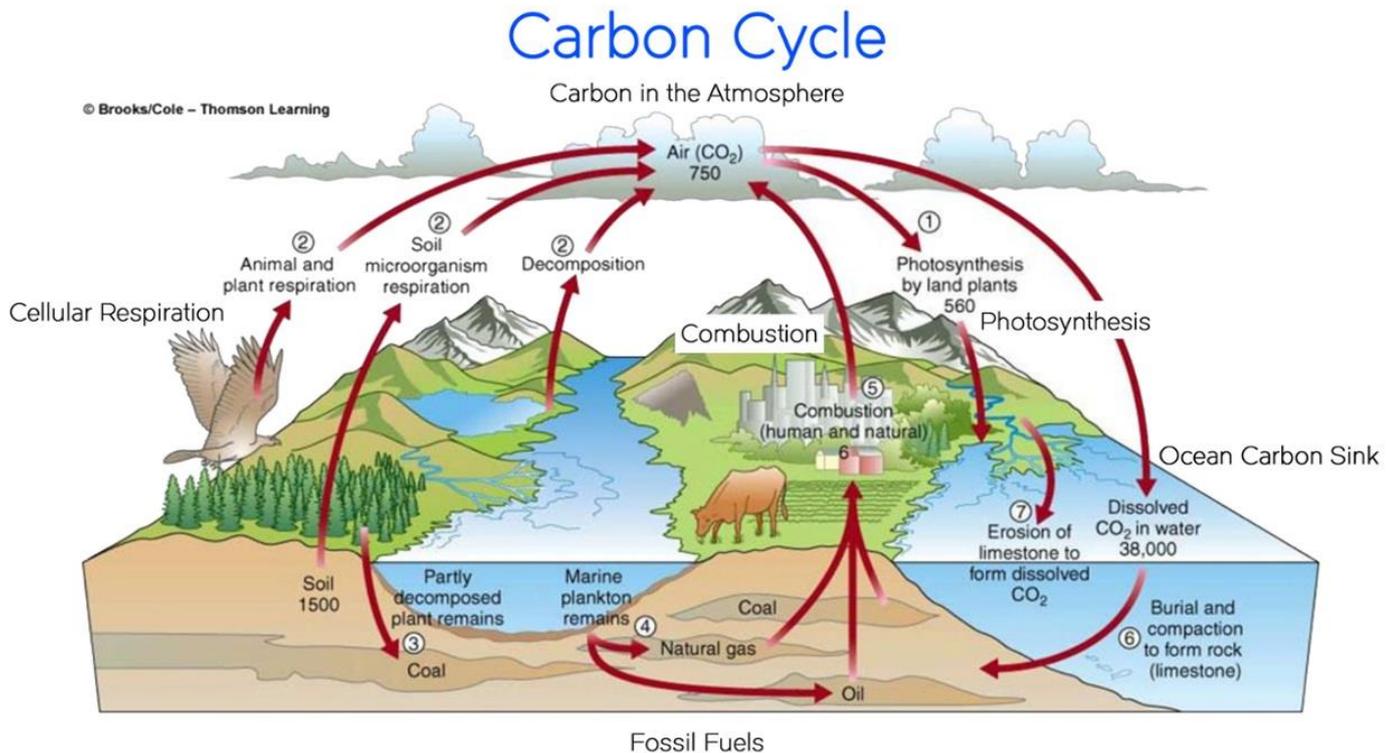
Our Ecological Footprint: Reducing Human Impact on the Earth: Mathis Wackernagel and William Rees

<https://gov.wales/sites/default/files/publications/2019-04/ecological-and-carbon-footprint-of-wales-report.pdf>

A more recent illustration is provided by Mike Berners Lee in the book 'There is no Planet B'. He calculates the travel miles possible using energy from a square metre of Californian land that is used for solar panels or growing wheat or willow grass.

	<b>Miles per square metre per year</b>
Electric Bike (PV)	21,243
Electric train (passenger miles, PV)	4033
Nissan leaf electric car (PV)	1081
Tesla electric car (PV)	927
Bike (bread powered)	45
Walking (bread power)	22
Airbus A380 (passenger miles biofuel from cellulose)	12
Biodiesel trail (passenger miles, wheat powered)	5
Biofuel car (willow powered)	5
Horse riding (wheat fed horse)	3
Biofuel car (wheat powered)	1

## Appendix Two: The Carbon Cycle and carbon storage



From <http://www.thinglink.com/scene/979054305975730178>

**Primo Levi's** autobiography of short stories 'The Periodic Table' includes 'Carbon' as the final story.

<https://transitionnetwork.org/sites/www.transitionnetwork.org/files/CarbonStoryByPrimoLevi.pdf>

### Carbon stock average estimates by broad habitat

Habitats	Carbon stock in soils (t Cha <sup>-1</sup> )	Carbon stock in vegetation (t Cha <sup>-1</sup> )
Dwarf shrub Heath	88	2
Acid grassland	87	1
Fen, mash and swamp	76	?
Bog	74	2
Coniferous woodland	70	70
Broad leaf,	63	70
Neutral grassland	60	1
Improved grasslands	59	1
Arable and horticulture	43	1
Coastal margins (UK)	48	?

From Natural England Research Report NERR043