



One Planet Wales

Transforming Wales
for a prosperous future
within our fair share
of the Earth's resources

Report summary
October 2007

About this summary

This summary is based on the technical report *One Planet Wales*¹, by Joe Ravetz for WWF-Cymru, available on <http://www.wwf.org.uk/core/about/cymru.asp>

This pilot report is based on a continuing research programme of modeling and analysis, and so all figures and projections shown here are estimates subject to various degrees of uncertainty. This research programme is an application of the One Planet Economy Network methods and tools: all papers are available on www.oneplaneconomy.network.org.uk

All figures and calculations are based on the REAP data and modelling system. REAP is a unique tool which calculates the environmental impact of every type of consumption and production at UK, regional and local levels. For details see www.sei.se/reap

¹ Ravetz J, Bond S, Meikle A (2007): *One Planet Wales*, Surrey, WWF-UK

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The mission of WWF – the global environment network – is to stop the degradation of the planet's natural environment, and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity;
- ensuring that the use of renewable natural resources is sustainable;
- reducing pollution and wasteful consumption.

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75%

This report shows that Wales can achieve as much as a 75% reduction in its Ecological Footprint by 2050.

The Welsh Assembly has been at the forefront of thinking on sustainable development since 1998. It has a duty to promote sustainable development.

There is a global imperative for governments to provide leadership on how to eradicate poverty and provide social justice and environmental protection for all the world's citizens. Wales could make a major contribution to this global agenda if it accepts WWF's One Planet Wales challenge.

The One Planet Wales challenge is for the people of Wales to lead healthy, prosperous lives within their fair share of the Earth's resources.

At present we are living a "Three Planet" lifestyle, to the extent that we are running down our natural resource base and destabilising our climate. However, as the Sustainable Development Commission stated in its report *I Will If You Will* (2006), "living within ecological limits is the non-negotiable basis for our social and economic development". This is an essential prerequisite to delivering sustainable development in Wales.

If, through its regeneration and social justice agendas, the Welsh Assembly Government can also demonstrate how to improve

"Living within ecological limits is the non-negotiable basis for our social and economic development"

Sustainable Development Commission

the quality of life for the poorest people in Wales, while at the same time reducing Wales' Ecological Footprint, it will truly be a global leader again.

However, real leadership is required if such an ambitious vision is to be achieved. It also requires a commitment to the One Planet concept from all walks of life, particularly businesses and consumers.

This report shows that Wales can achieve as much as a 75% reduction in its Ecological Footprint by 2050.

In order to reach this goal, there has to be a step-change right across the economy – a new system of production and consumption, where business success depends on resource efficiency, and consumer value depends on quality rather than quantity.

Above all, One Planet Wales needs a commitment to change not only from the Welsh Assembly Government, but also the whole of the public sector. They will need to take the lead and coordinate actions from national to local level, on housing, transport, and supply chains for all our material needs.

This means taking responsibility as stewards of our environmental assets and managing markets in those public goods for the benefit of all. It also means working in multi-level governance with policies from UK or EU level, and multi-lateral governance in partnership with local communities and the private and civic sectors.

Most of all, it means action in the next term of government. As Professor Sir Nicholas Stern states in his report *The Economics of Climate Change* (2006), global CO₂ emissions must peak and start to reduce in the next 10 years. And as Wales' consumption patterns contribute to the global growth in emissions, it is vital that the large, structural changes required (and which will take many years to achieve) must begin now.

Main recommendations to the Welsh Assembly Government and the public sector

- > Set a One Planet Wales target and reduction strategy across all sectors.
- > Form supply chain partnerships for market transformation in key sectors.
- > Use public sector expenditure to foster business innovation and low-impact infrastructure.
- > Assess all programmes and procurement for contribution to the One Planet Wales challenge, particularly flagship regeneration projects.
- > Develop policies which remove barriers to consumer behaviour change and promote sustainable consumption.



Part 1:
The One Planet
Wales Challenge



The way we live in Wales has global impacts. If everyone consumed natural resources as we do, we would need three planets to support us. Of course, we only have one planet – and we’re destabilising its climate and using its resources at an accelerating rate. We must find a way to live within the Earth’s natural capacity while still enjoying a high quality of life.

This is what WWF Cymru calls the One Planet Wales Challenge.

Put simply, the Challenge is for the people of Wales to lead happy, healthy, prosperous lives within their fair share of the Earth’s resources.

To achieve this, Wales must organise an economy which thrives on one planet, rather than squandering the resources of three planets, as at present.

We must also avoid dangerous climate change by reducing greenhouse gas emissions. The UK government has already accepted 2050 as the target date for major (60%) reductions in CO₂

emissions, (although, emerging evidence is now suggesting that reductions of 80% are now required to avert dangerous climate change).

We therefore propose that 2050 should also be the target date for achieving the One Planet Wales Challenge.

Failure to do so risks exhausting the ecological assets upon which we all depend, and consequent economic and social disruption in a similar manner to that predicted for climate change.

Success will mean that by 2050, our resource efficiency is increased by a factor of four, so that that Wales’ Ecological Footprint will be 25% of its current level (1.39 global hectares per person)². Climate change emissions will also be reduced by a similar amount.

This is a strategic approach for a longer timescale, which enables many economic and social opportunities to be found in the transition to a One Planet Wales. Many recent reports, from the Stern Review to WWF’s own *Climate Solutions*, have shown that the world can increase resource efficiency and curb climate change – but only if key decisions on investments are made in the next 5-10years.

What is an Ecological Footprint?

The Ecological Footprint calculates the land area needed to feed, provide resources, produce energy, and absorb the pollution generated by our supply chains. As this land is distributed around the world, the figure is put in global hectares (gha). In 2001, the average person in Wales had an Ecological Footprint of 5.25 gha. If we divided all the available biocapacity in the world by the present population, there is only 1.8 gha per person. Hence, if everyone in the world lived like we do in Wales, humanity would need three planets to support itself. Taking into account population growth and changes in land capacity, the fair “earth share” by 2050 is likely to be about 1.3 gha per person – about a quarter of Wales’ current Footprint.

“The Challenge is for the people of Wales to lead happy, healthy, prosperous lives within their fair share of the Earth’s resources”

² All figures for the baseline are shown with an estimated +/- 2% range of uncertainty. Figures for future scenarios and projections are shown with much greater levels of uncertainty, as they depend on many assumptions on markets, technology, environmental pressures, policy impact and behaviour change.

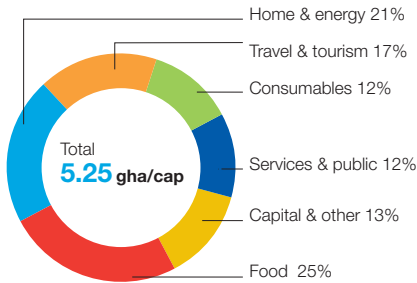


Fig 1
The makeup of Wales' Ecological Footprint (2001)

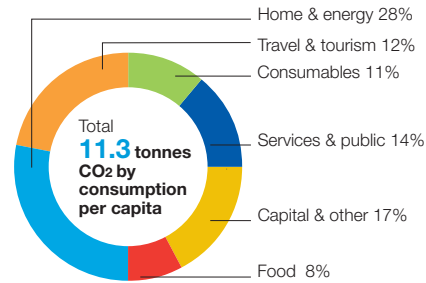


Fig 2
The makeup of Wales' carbon footprint (2001)

The main indicator which we use to define the conditions for a One Planet Wales is the Ecological Footprint. The “footprint approach” addresses the global impact of Wales’ consumption – wherever and however it is located on the planet – by calculating our *responsibility* for that impact, rather than what is produced within the territorial boundary of Wales.

The Ecological Footprint includes the carbon and climate emissions embodied in our consumption, measured as land required to soak up the emissions; it also includes the land areas used directly by various parts of the supply chain. The Ecological Footprint is the focus of the key sectors in the next section.³

The Ecological Footprint measure shows a more rounded picture than the carbon footprint. While it includes the embodied CO₂ (as does the carbon footprint) it also includes land areas used for production as well as the absorption of our waste.

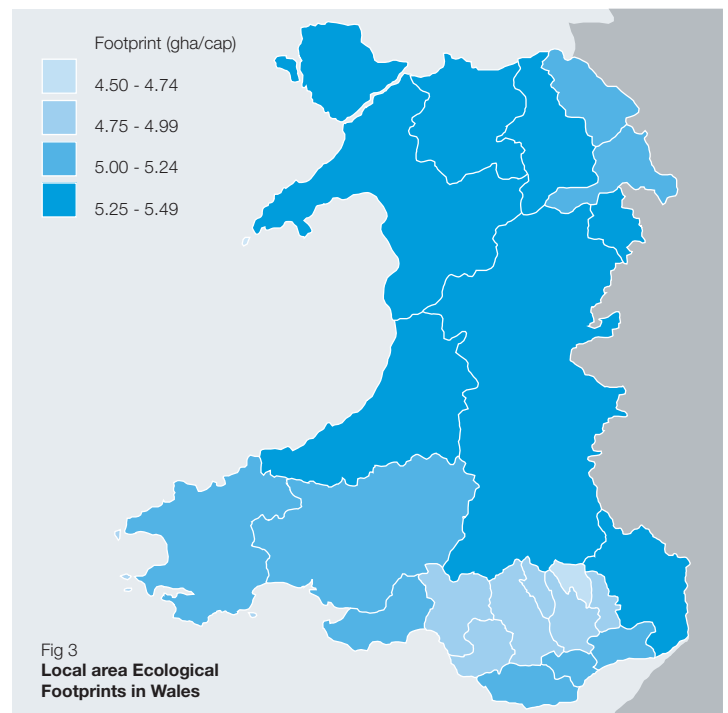
This is the focus of the key sectors in the next section:

> Wales’ total Ecological Footprint is 5.25 global hectares per person (the total footprint of the population of Wales is more than seven times its total land area).

- > Food and drink is 25% of the total Footprint, and is rising due to increased processing and transport.
- > Home and energy is 21%, mainly due to older, poorly insulated buildings burning large amounts of fossil fuel, but 20% of this is due to construction and maintenance.
- > Travel and tourism accounts for 17% of the total, most of which is due to car traffic and air travel – this being the most rapidly increasing sector.
- > Consumables – all other household items – are 12% of the total.
- > Services and government (public services) together are 12% and rising rapidly due to the shift towards service sector activity. More than half of this is health and education.

The Ecological Footprint is the most comprehensive broad brush measure of human impact on the Earth’s resources, but it is useful to look at the carbon footprint component of this:

- > The current Wales carbon footprint, due to consumption, is 11.3 tonnes CO₂ per person, compared with the UK average of 11.8 tonnes.⁴
- > The sector with the largest carbon footprint is home and energy at 28% of the total.⁵



Wales’ Ecological Footprint can also be broken down by local authority area. It is clear that parts of north-east Wales, Pembrokeshire and the South Wales Valleys have some of the lowest footprints in the UK. The key policy challenge in this context is how to increase the quality of life in the most deprived and socially excluded areas of Wales, without increasing their ecological impact.

3 The definitions and footprint figures for each key sector are consistent with the ‘Footprint Wales’ report of 2005. They are due to be revised in late 2007 to be consistent with the UN Statistical Office definitions of COICOP classifications. The One Planet Wales main report provides details of the changes.

4 Barrett, Ravetz and Bond 2006: *Counting Consumption*. WWF-UK

5 Methodology is explained in the main report

What are the main targets and milestones we need to adopt to achieve a One Planet Wales?

Figure 4 shows the trend in Wales' Ecological Footprint if we continue with current policies and lifestyles. It then compares this with the desired trajectory towards a One Planet Wales by 2050.

The Ecological Footprint target

We can calculate the annual trend and "decoupling" needed to meet the Ecological Footprint target:

- > "Business as usual" policies would see Wales' footprint growing by over 30% by 2050 (see Figure 4).
- > To reduce Wales' footprint of 5.25 gha/cap to a fair share of 1.3 gha/cap by 2050 would need a 75% reduction in resource use – a Factor Four reduction.
- > This equates to a year on year reduction in total footprint of nearly 3.5% per year. By 2020 the reduction would be 32%, and 75% by 2050.
- > If we factor in economic growth at an average 2.5%, then the target rate of decoupling or resource intensity change (Footprint/£GDP) would be a reduction of 6% year on year – over twice the rate of decoupling in the recent past.
- > Short-term policy and programme changes, if started in 2008, could achieve reductions of 10% by 2011.

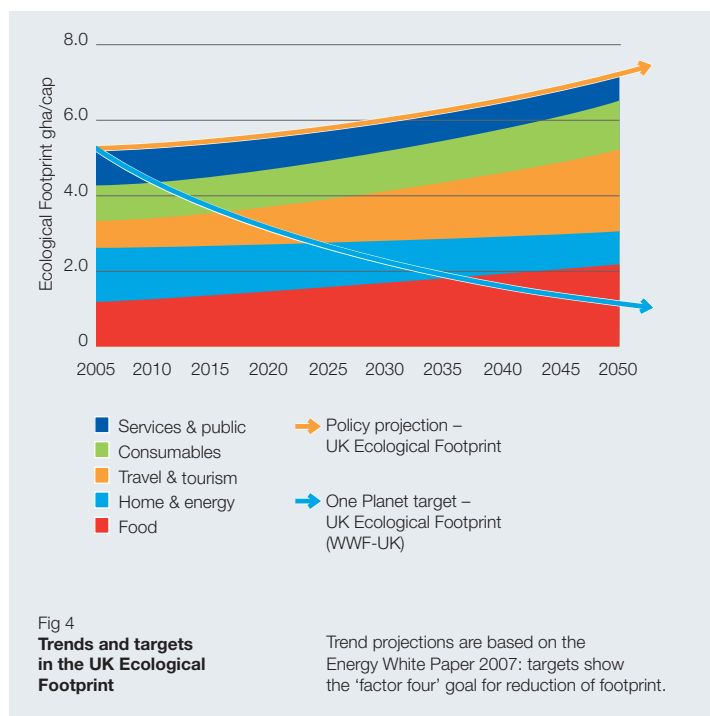
Carbon footprint/climate emissions targets

The UK, EU, the Stern Review and the Inter-Governmental Panel on Climate Change have each set out targets for climate emissions: estimates of the reductions needed to prevent "dangerous" climate change vary from 2.5% to more than 6% per year. The first target is politically moderate but incurs a better than even chance of runaway climate change catastrophe; the second target is politically challenging, but in fact much less risky in terms of stabilising the Earth's climate.

The targets for climate emissions, carbon emissions, carbon footprint and Ecological Footprint are closely linked (although there are important differences). As a point of principle we believe that we should measure the carbon emissions from both production and consumption, otherwise we could meet our Wales emissions targets by shutting down what remains of heavy industry and importing the goods from overseas (which would increase global emissions).

Overall, we believe that a One Planet Wales should set a target for each of these measures – climate emissions, carbon emissions, carbon footprint and Ecological Footprint – in the region of a Factor Four change: a 75% reduction by 2050.

We wait to see how the government of Wales accepts this challenge.



What's the difference between Ecological Footprint, carbon footprint, carbon emissions and climate change emissions?

The **Ecological Footprint** measures the land and sea area that would be required to absorb our carbon emissions, as well as the actual land area required for all the supply chains involved in consumption, including our waste. So it gives the fullest picture possible of the human impact on the Earth's resources.

The **carbon footprint** measures all the CO₂ emissions that Wales' residents are responsible for, rather than those coming from within Wales' boundaries. A carbon footprint counts both the direct carbon emissions for consumption (heating, cooking, lighting etc) and indirect emissions (shipping, aviation and the embodied emissions contained in the products consumed in Wales). So emissions from Welsh power stations producing electricity for export, for example, are not counted in the carbon footprint, but the impact of electricity consumption by Wales' residents is counted.

The **carbon emissions** account is concerned with the actual direct emissions of CO₂ within our boundaries, and covers production for direct consumption and for export. The Kyoto Protocol target relates to total **climate change emissions** – a basket of six greenhouse gases, of which CO₂ is the most significant in absolute terms.

In practice, the targets for Ecological Footprint, carbon footprint, carbon emissions and climate emissions, while differing in their accounting structure are linked, and a 75% reduction (Factor Four change) in one is likely to help bring forward a similar target for the other measures.

Part 2:

Key sectors

This section focuses on the key sectors which must be transformed, and the key policy and programme changes required for the One Planet target in that sector. This approach is not a menu of options, but simply a way of making the economy manageable. To achieve a One Planet Wales, all sectors need to be considered in the round; and to achieve the challenging aggregate targets presented above, the full suite of options needs to be implemented.

In each sector, we focus first on the medium to longer term strategic programmes from 2020 to 2050. These need to be started *now* to have any effect. As with all policy and infrastructure issues, there is a need to tackle the slow things first. Then we review the short-term actions within the next four

years of this government, aiming at quick wins and popular results.

The effects are presented in terms of fractions saved from the Ecological Footprint (consumption-based account) of that sector by 2050. These can be added in the form of a “shopping list” to understand the total reduction in the overall footprint.

The charts for each sector show the “business as usual” projection of unrestricted impacts, together with slices for each policy and programme action, which help to stabilise, then reduce, the impacts of each sector. Different sectors have different targets, reflecting the anticipated rates of technology change, economic effects, behaviour change and policy commitment.⁶

Part 3 sets out the basis of how and by whom these measures are to be achieved.

What is a consumption-based account?

This accounts for all impacts caused by supply chains, including imports, needed for **consumption** by households (“final demand” in economic terms, meaning they do not sell the goods on.) Counting it this way gets around the “green illusion” whereby our CO₂ production account would improve if we simply shut down all heavy industry and imported all its products from overseas.

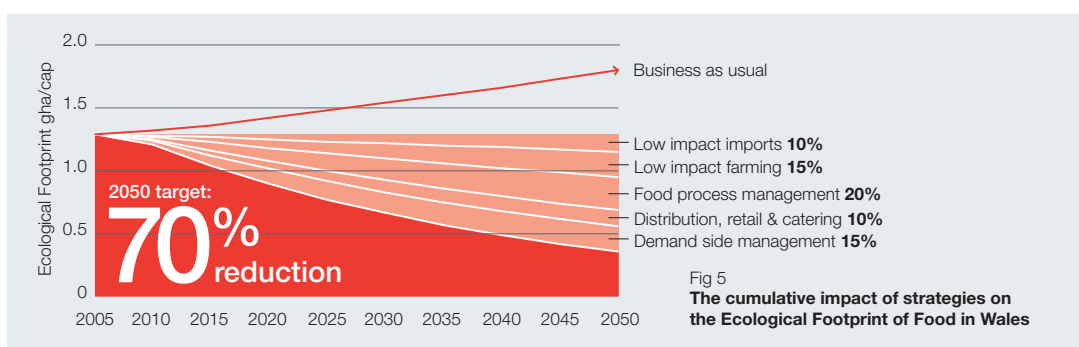
In contrast, the **production** account focuses on supply chains, including overseas exports. In practice, there is a directly consumed fraction of production within our boundaries, which varies between sectors and products.

Further discussion of the implications of these approaches is in the main report.



At present, **75%** of all food eaten in Wales comes through supermarkets where consumers are faced with 20,000 products, each with sophisticated packaging and advertising.

The One Planet Food agenda sees a transformation of the food system at each stage of the supply chain, with an agricultural-environmental agenda on the producer side, and a healthy diet agenda on the consumer side.



1.29 gha/cap

The total Ecological Footprint of our food consumption. This comprises imports, farming, processing, distribution, packaging, catering and retail, with a further allocation for the waste fraction at each of these stages.

Strategies for 2020-2050

Low impact imports

Applying the principles of fair trade, sustainable sourcing and corporate responsibility to all food imports could save up to **10%** of the food sector's Ecological Footprint.

Low impact farming

Organic conversion is well suited to smaller scale cultivation for local markets: it needs an active procurement strategy through the Welsh Assembly Government and the public sector, combined with EU and local incentives for land stewardship and farm diversification. This could save up to **15%** of the Ecological Footprint.

Food and drink processing sector

Applying energy and environmental management and industrial ecology clusters principles could save up to **20%** of the Ecological Footprint.

Distribution, retail and catering

Applying environmental management, intelligent logistics, low-impact packaging and waste minimisation across the sector could achieve a target reduction of **10%** of the Ecological Footprint.

Demand side management

Focussing on the healthy diet and consumer side: the Welsh Assembly Government and the public sector needs to promote, demonstrate, educate and facilitate across all public services, to encourage sustainable food purchasing. This could save up to **15%** in addition to the above.

Short-term priorities to 2011

The effect of immediate action in the next four years should be to kick-start a **10%** reduction in this sector's Ecological Footprint:

- > Local and organic food procurement for public catering;
- > local organic food promotions;
- > environment-business initiative in the food processing and retail sector; and
- > One Planet Food strategy and monitoring/evidence base for the longer term.

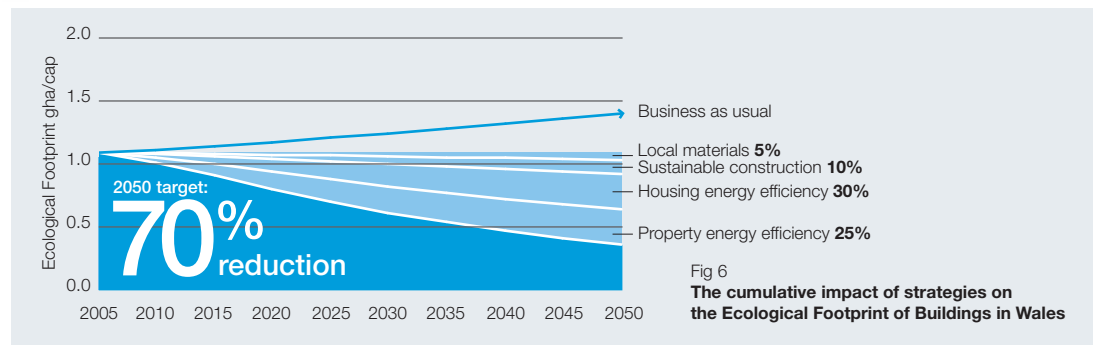


Many towns and cities in Wales are composed of buildings which are inefficient and unsuited to the 21st century. While policies for new buildings are much needed, it is the existing building stock which is the bigger challenge for the One Planet agenda.

One Planet Buildings in Wales sees a future of low-carbon sustainable buildings responsive to the sun and the elements, surrounded by townscapes which are green, clean and human-scale.

1.09 gha/cap

The total Ecological Footprint of domestic buildings. Approximately four fifths is from energy in use, the remainder from construction and maintenance. Commercial and public building construction, shown as "capital", account for another 0.38 gha/cap.



Strategies for 2020-2050

Local materials

Local materials are in abundance in Wales, and should be the first choice for ecological design. This could save up to **5%** on the current Ecological Footprint of buildings by 2050.

Sustainable construction

Sustainable construction focuses on the offsite production and distribution of building materials. Architects, engineers, developers, suppliers and local authorities need to coordinate in supply chain partnerships, to ensure that all materials and components are low-impact and cost-effective over their life cycle. This could save up to **10%** on the total Ecological Footprint.

Housing energy efficiency

Now that Wales and the UK are committed to zero-carbon new housing by 2011 and 2016, the focus is back on the existing building stock. The technology now exists, but if it is to be cost-effective it needs market transformation partnerships. These would bring together residents, lenders, landlords, utilities, developers, designers and builders who would bring the entire housing stock up to best practice standards. This would reduce by up to **30%** the current Ecological Footprint of buildings.

Property energy efficiency

For larger buildings there is the prospect of carbon trading as a means of raising investment finance and providing incentives for improvements. This should be rolled out in the public sector as a priority, then to all other properties. This would save up to **25%** of the current Ecological Footprint of buildings.

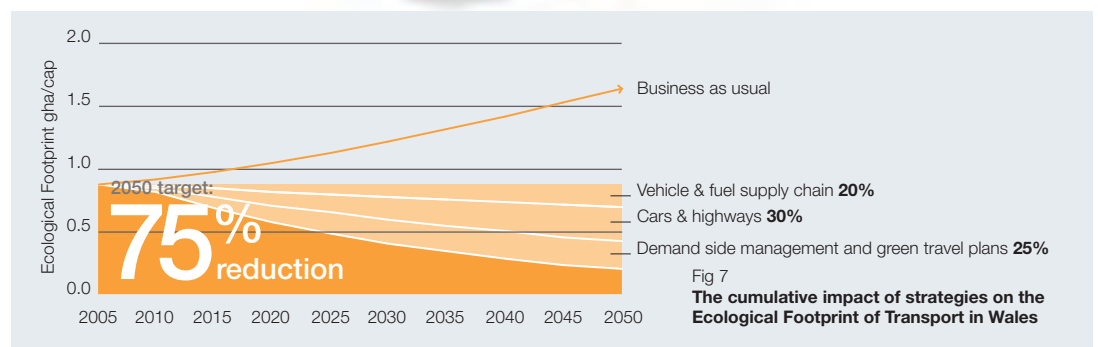
Short-term priorities to 2011

The effect of immediate actions in the next four years should be to kick-start a reduction of about **8%** in the Ecological Footprint of this sector:

- > Construction industry supply chain forum, and re-used materials exchange scheme;
- > low-carbon house building demonstration programme by the public sector;
- > existing housing rehabilitation demonstration, showing the partnership approach;
- > public buildings best practice programme, with a prototype public sector internal carbon market (consider the RAF St Athan development as a flagship);
- > longer-term campaign strategy, together with a monitoring/evidence base; and
- > ensure rapid implementation of zero-carbon new homes, making the Code for Sustainable Homes compulsory.



The terrain and geography of Wales is certainly a challenge for sustainable transport. The One Planet Transport vision sees a future of low-impact, high quality, IT-enabled, responsive public transport; a car fleet which has raised its efficiency by several times; and on the demand side a total coordination of activities and locations to reduce travel needs to a minimum.



0.88 gha/cap
The total Ecological Footprint of our use of transport. This comprises the vehicle, infrastructure and fuel supply chains, and direct fuel consumption by car, bus, rail and (leisure) air travel modes (freight, business aviation and marine shipping are counted in the supply chains of other sectors).

Strategies for 2020-2050

Vehicle, infrastructure and fuel supply chain

Environmental management in automotive industries, life-cycle design and use of alternative fuels can all be encouraged and enabled by the Welsh Assembly Government and the public sector. This could reduce by up to **20%** the sector's total Ecological Footprint.

Public transport

New technology opportunities such as demand-response scheduling, real-time tracking and signalling, integrated ticketing and support facilities can raise the quality, efficiency and utilisation of public transport. We anticipate an increase in public transport use at about the same rate as its efficiency improvement, so its total footprint would show little change.

Cars and highways

Intelligent local traffic management is one end of an agenda which may then bring in park and ride schemes, congestion charging, low-impact vehicle incentives, car clubs and occupancy schemes, and fleet/logistics management. Coupled with a reduction in total car mileage, this would reduce the footprint by up to **30%**.

Demand side management and green travel plans

A continuous partnership approach between the public sector, businesses and the community is required. Developments and organisations will need to plan for accessibility and low-impact mobility, fitted to the opportunities of public transport and travel substitution. By simple travel reduction, this could reduce the footprint by a further **25%**.

Short-term priorities to 2011

The effect of immediate action in the next four years should be to kick-start a reduction of about **10%** in the Ecological Footprint of this sector:

- > A low-impact vehicle incentive pilot programme;
- > green travel planning for all public sector organisations;
- > Green tourism programme with integrated travel based on rail and responsive bus services; and
- > longer-term campaign strategy with a monitoring/evidence base.

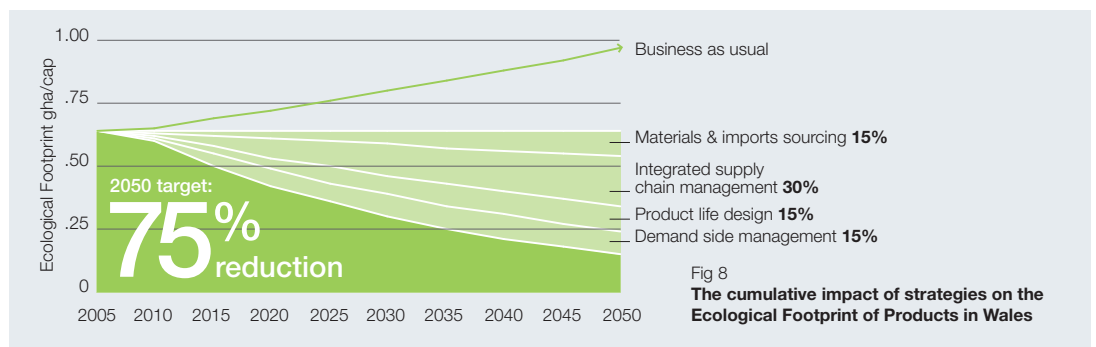


Tracking the modern outsourced material economy is increasingly complex – the average product comes from globalised supply chains, for a consumer market driven by advertising and planned obsolescence.

In a One Planet Wales economy, the average product will last longer and be adaptable, designed for re-use and reconditioning, built from lower-impact materials with higher efficiency, sourced locally or with low-impact distribution. While most manufacturing in Wales is an integral part of the UK and EU economies, there is great potential for a unique and competitive marketing edge in the One Planet Wales label. In a tough business climate, this needs kick starting by the public sector through procurement and innovation partnerships, followed by extensions of carbon trading industrial markets.

0.64 gha/cap

The total Ecological Footprint of our consumables. This comprises raw materials, industrial processes, plant and machinery, and distribution and retail impacts.



Strategies for 2020-2050

Materials and imports sourcing

Wales should aim at **100%** sustainable sourcing and ethical trading, with incentives from public procurement, market accreditation and eco-labelling. This could save up to **15%** of the total Ecological Footprint of the sector.

Integrated supply chain management

There needs to be greater coordination in sectors and clusters on the industrial ecology principle, with groups of suppliers, processors, distributors, utilities and others. This can achieve full-scale energy/water/ waste minimisation coupled with major cost savings, and could save up to **30%** on the sector's total footprint.

Product life design

The life cycle of products includes energy, maintenance, waste and the consequent demand for new products. Sustainable design could save up to **15%** of the total footprint.

Demand side management

There is an agenda for social enterprise as an alternative to private material consumption. This can include leasing/sharing of products, re-use and recycling exchanges, and awareness campaigns. By simply re-directing demand, this could save a further **15%** of the footprint.

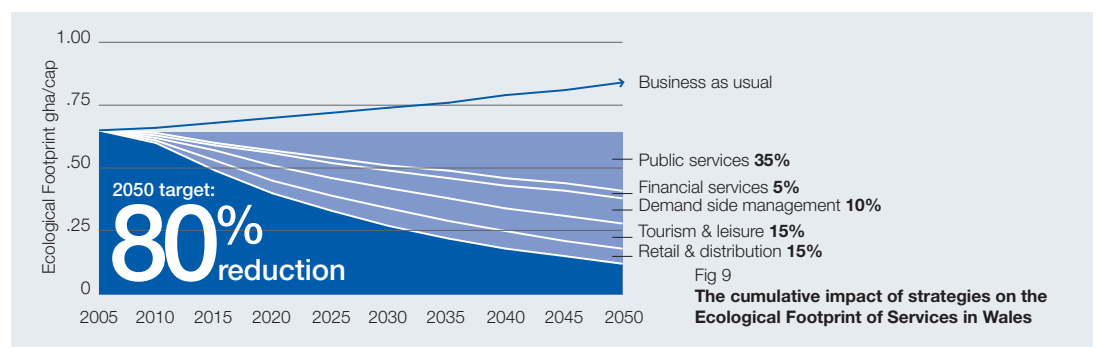
Short-term priorities to 2011

The effect of immediate action in the next four years should be a reduction of about **10%** in the Ecological Footprint of this sector:

- > Sustainable sourcing pilot schemes for materials and imports;
- > supply chain management pilot schemes in selected industrial clusters;
- > sustainable consumption feedback campaign targeted at schools and colleges; and each of these should be dealt.
- > longer-term One Planet Products strategy with a monitoring/evidence base.



Now that services form the majority of Gross Value Added and employment in Wales, the One Planet agenda needs to focus on these more complex and wide-ranging activities. The vision of One Planet Services in Wales would be led by public sector procurement and based on corporate social responsibility, integrated environmental management, ethical trading and investment, life cycle carbon trading, IT-enabled distribution and local community ownership.



Strategies for 2020-2050

Public services

Health and education are the first priority for a One Planet procurement strategy. This should use its £6 billion public expenditure in Wales to promote supply chain partnerships and innovation strategies for suppliers and contractors. This could save **35%** of the current Ecological Footprint.

Financial services

Financial and other business services have a crucial role in setting the incentives for all other sectors. There is a transformation agenda which includes carbon/ecosystem trading, community credits, triple bottom line accounting, and mutual/cooperative equity structures. The direct/upstream impacts could be reduced by **5%** of the total Ecological Footprint of the sector.

Retail and distribution

Retailing has large onsite impacts through buildings, logistics and waste/packaging, as well as wider impacts on local economies and communities. There is a sustainable retail agenda for logistics, premises, sourcing, product life, equity structure and local markets. Direct and upstream impacts could be reduced by up to **15%** of the total footprint.

Tourism

Tourism is the largest single employment sector in Wales. There is a wide-ranging agenda for sustainable transport, catering, accommodation, diversification and landscape management. This could save **15%** of the Ecological Footprint.

Demand side management

Social enterprise, intermediate labour markets and community self-help are sustainable alternatives in many areas such as social care, landscape protection and urban regeneration. Substitution of low- for high-impact activity could save **10%** of the sector's current footprint.

Short-term priorities to 2011

The above depends on short-term enabling actions in the next four years, with a reduction of up to **10%** in this sector's Ecological Footprint.

- > Retail: large/small business partnership with pilot carbon trading and fair trade programme.
- > Financial services: ethical investment pilot programme with internal carbon trading scheme.
- > Tourism: green visitor scheme for travel, catering, accommodation etc.
- > Public services: first phase greening of health and education buildings, catering, transport and other suppliers.
- > Demand side: develop social enterprise pilots which generate local employment and training, high-quality services and community stakeholder ownership.

0.65 gha/cap
The total Ecological Footprint of all the services we use. Roughly two thirds is from public services and one third commercial services.



Energy is the key to the climate change and resource efficiency agenda. So what can Wales do? Most UK energy is now foreign-owned, and Wales' self sufficiency is declining – even the new gas pipeline from Milford Haven is part of a Europe-wide network system.

The One Planet Energy vision sees a future where Wales' energy demand is tapered down and local renewable energy sources are accelerated up. Behind this is a wide-ranging transformation of the energy infrastructure and distribution system, from global resources to individual homes and products.



The Ecological Footprint of the energy we use is accounted for in other sectors above. The strategies and actions shown here are needed so that targets in those sectors can be achieved.

“The One Planet Energy vision sees a future where Wales' energy demand is tapered down and local renewable energy sources are accelerated up”

Strategies for 2020-2050

Renewable sources

The current Welsh Assembly Government renewable energy scenario targets a four-fold increase from 2000-2010, the majority from onshore and offshore wind, with further contributions from biomass and waste recovery. This trend needs to continue.

Micro-generation

The new government needs to enable and accelerate small-scale localised generation through new forms of utility finance and distribution partnerships.

Energy demand management

There needs to be a new raft of incentives to take up the efficiency measures, which would avoid the need for new nuclear generation. These should focus on carbon trading and quota schemes for affordable warmth, and commercial “nega-watt” investment.

Public sector initiatives

An active role will be needed from government and the public sector through procurement, supply partnerships, efficiency investments, alternative fuel infrastructure and micro-generation innovation.

Short-term priorities to 2011

These immediate actions are required to enable the **10%** targets to be achieved in other sectors:

- > Renewables: develop medium/long-term programme for wind, solar and biomass at local and regional level.
- > Micro-generation: accelerate take-up through pilot technology programme with utility rebates.
- > Demand management and the public sector: set up a pilot internal carbon trading market and extend this to an energy partnership investment programme.
- > Strategic programme: Set up a strategic programme for national energy transformation, complete with monitoring and an evidence base.



This section covers the beginning, middle and end of the material cycle – from virgin minerals and forest products to the waste stream at the “end of the pipe”. The reality is that well before 2050, material and commodity prices will almost certainly rise rapidly due to global demand, while the cost of waste management also rises.

So a One Planet Resource economy is simply good business sense, as well as an environmental agenda. The concept is based on re-circulation – recycled, re-manufactured and re-used materials and products would become the default, and virgin products and imports reduced to a minimum. The challenge is how to fit this to supply chain innovation, retail logistics and packaging, economic value added, consumer lifestyle habits, local charging incentives, and so-on.

Strategies for 2020-2050

Re-use and re-manufacturing

All products should be designed for an extended life cycle – re-use through demand side exchange, and re-manufacturing through supply side industrial ecology clusters. This is then applied to deposit return, product take-back, eco-labelling and direct regulation of high-impact products such as batteries and light bulbs. Markets in carbon trading may extend to ecosystem trading to cover the impacts of water, timber and other resources.

Waste recovery supply side

This takes a more downstream “end of pipe” focus on waste management logistics, material/energy recovery technology, and supply chain waste minimisation/sorting.

Packaging and other temporary material use

Form partnerships with the retail and logistics sector with zero-packaging deposit return systems.

Waste management demand side

This looks upstream at small business practices and community re-use/recycling activities. The Welsh Assembly Government and public bodies should focus on procurement, local incentives, local tax and investment programmes, and establish transformation strategies for key sectors.

“Recycled, re-manufactured and re-used materials and products would become the default”

Short-term priorities to 2011

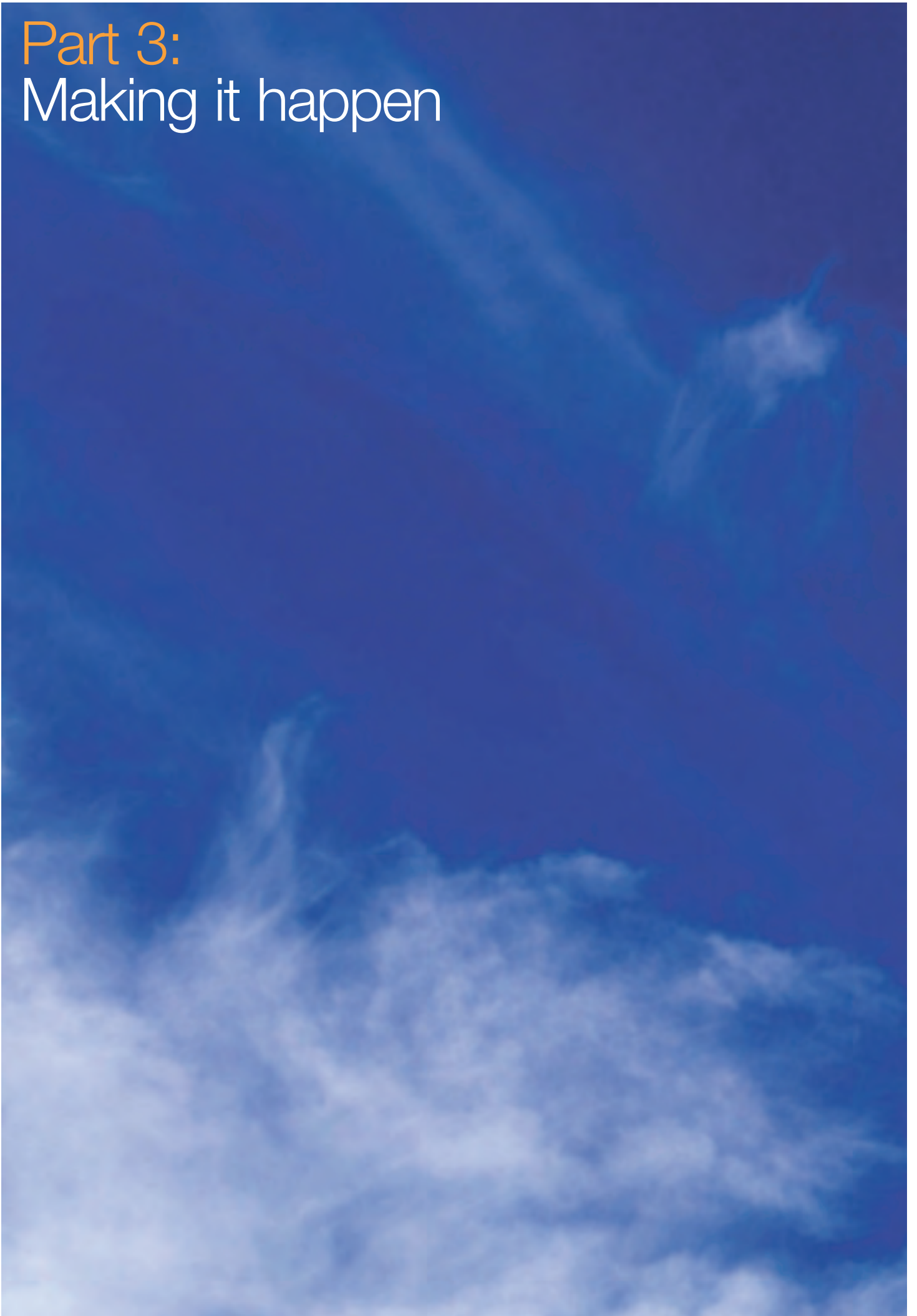
These are immediate actions to enable the **10%** targets to be achieved in other sectors:

- > Re-use and re-manufacturing: industrial ecology clusters, partnerships and material exchanges.
- > Waste recovery: best practice programme in waste technology, material recovery and supply chain management.
- > Packaging: promote bag-free retail centres with deposit return schemes.
- > Waste recovery demand side: School programmes for creative recycling; target feedback on communities with waste disposal issues.
- > Set up the strategic programme for a One Planet Resource transformation with monitoring and evidence base.



The Ecological Footprint of resources and waste is accounted for in other sectors above. (The waste footprint can be calculated in various ways – details are in the main report). The strategies and actions shown here are needed so that targets in the other sectors can be reached.

Part 3: Making it happen





If a One Planet Wales is to happen, real political vision and ambition is required.

This needs to be followed by commitment and tenacity to implement that vision over a 40-year timescale. It also takes courage and leadership to start *now* on this long and complex journey.

To *achieve* sustainable development in Wales (as opposed merely to promoting it) requires change.

- > Change to a One Planet Economy;
- > change to a public sector whose role will be to ensure the stewardship of our environmental assets, ecosystem services and to manage the markets in the public goods they provide; and
- > change in consumer behaviour.

This requires a strategic programme of transformation in markets, governance, technologies and consumer behaviour. Political leadership is required to secure cooperation from every sector in Wales, as well as from individual consumers.

New relationships must be forged and new roles for the public sector accepted.

It will also require political maturity, which accepts the principle of multi-level governance, in order to work with sustainable development agendas and policies that can only be enacted at a UK or EU level.

The new government of Wales must now step up and scale up our transformation to a One Planet Wales. Success will be measured only by turning a problem into an opportunity – the *problem* of climate change and resource use, into the *opportunity* for economic development and social progress.



Wales is neither unique nor alone in this One Planet transition: the UK government has also accepted the need to develop a One Planet Economy, as outlined in *Securing the Future*, its sustainable development strategy.⁷

To make real progress the Welsh Assembly Government will need to bring to the One Planet agenda every kind of financial power available to the public sector. The context for this is national macro-economic policy and the overall limits to public spending. Within this are many possibilities to be explored, not only by the Welsh Assembly Government, but by the many branches of government and public services:

- > Carbon emissions trading and quota schemes: graduated to be tax-neutral and progressive;
- > ecosystems lifetime credit schemes – for example, product impact charging;
- > activity/infrastructure levies – for example, congestion charging with re-investment in public transport;
- > each of these to be combined with regulation and behaviour incentives;
- > each of these should be dealt with at the most local level; and
- > the whole package should add up to serious investment in strategic market transformation in key sectors.

One Planet Economy Network

WWF-UK is developing the One Planet Economy agenda through the One Planet Economy Network. A One Planet Economy will involve a wide-ranging and innovative set of policies and investments at every level – local, regional, national and global. These policies aim for a sector by sector transformation strategy – a full industrial evolution – and include low-impact technologies, integrated supply chains and sustainable consumption.

Achieving a One Planet Economy will involve new kinds of tax and public investment and new arrangements between public, private and community sectors. It should be financially viable, socially responsible, and suitable for practical action in the shorter and longer terms. It places government and the public sector in the pole position in various ways:

- > as stewards of environmental assets and values;
- > as managers of markets in environmental assets;
- > as direct purchasers and clients;
- > as operators of direct public services; and
- > as enablers and sponsors of market transformation.

www.oneplaneconomynetwork.org

“The Welsh Assembly Government will need to bring to the One Planet agenda every kind of financial power available to the public sector”



Many mechanisms to achieving a One Planet Wales depend upon the actions of other actors and other institutions, in which the Welsh Assembly Government not only plays a part, but can take the lead.

Such strong governance, leadership and decisions are often about implementing those difficult “hard policies” – but there is also a place for “soft policies” which focus on harnessing existing structures and networks in Wales to create pro-environmental behaviour change programmes. Such an approach to decoupling growth from material consumption examines behaviour change incentives, awareness and education, media and fashion, and (dare we say it) personal development.

It is increasingly clear that consumers are locked in⁸ to current consumption patterns by a combination of economic rules, market incentives, psychology and conditioning, social structures and norms, institutional frameworks, cultural values and narratives.

Against this, traditional campaigns to raise awareness often have little effect on changing behaviour.

So an active leadership in government will look for smarter ways to combine hard investment with soft policies, to provide catalysts for change in lifestyles, management, institutions and so on:

- > targeted individualised and social marketing behaviour change programmes;
- > coordinating and supporting local authorities in better using the ‘power of wellbeing’ to address the One Planet Challenge in their areas;
- > linking seemingly disparate agendas together – for example, health workers engaged in health programmes are often unknowingly promoting a pro-environmental agenda (eat less meat, walk more etc);

“An active leadership in government will look for smarter ways to provide catalysts for change in lifestyles”

- > active use of IT to enable ‘distributed intelligence’ – there is huge potential for new generation web services on the models of eBay and MySpace: trading for re-use and recycling, consumer needs profiling, digital democracy, social spaces for community networks and so-on;
- > enhancing social enterprise, and encouraging organisations to work on the vital overlaps between private, public and community sectors; and
- > encouraging and enabling the build up of social capital, such as lifestyle aspirations, skills and careers, and community investment.



It is often said that Wales is a leader in sustainable development – but it is clear from Ecological Footprint and carbon footprint analysis that this is far from true.

If we do nothing to change, Figure 10 shows the likely increase in the different components of the footprint. The biggest increase comes from the growth in air travel, but the food and consumables sectors are also increasingly mechanised, globalised and resource intensive.

However, Wales' potential for change must be realised if we are going to meet the One Planet Wales Challenge. Implementing all the recommendations in this report would result in a reduction in the total ecological and carbon footprints by about 75% by 2050, with a footprint of 1.39 gha/cap. Some "quick wins" which demonstrate real change would

achieve up to a 10% reduction by 2011 and a 33% reduction by 2020.

Figure 11 shows that *all* sectors make a contribution to this reduction, so all must be tackled at the same time. It also shows the relative amount of reduction that is possible from each sector.

The Stern Report makes the clearest economic case yet presented for action – that every £1 spent now in hastening this transformation will be worth £20 in the future. So it is vital that the large, slow, structural change issues start to be addressed before 2011.

The principles of a One Planet Wales are widely accepted, and the need for action has never been more evident. The question remains how the new government of Wales can grasp this challenge and the opportunities it brings. It is clear that this is likely to need a multi-level programme – of policy and investment, visioning and capacity building – all of which should lead to measurable results on the ground.

The nation waits.

Sector	Current Ecological Footprint	2050 Ecological Footprint	% reduction by 2020	% reduction by 2050
Food and drink	1.29	0.41	30%	70%
Home and energy	1.09	0.35	30%	70%
Travel and tourism	0.88	0.24	35%	75%
Consumables	0.64	0.17	35%	75%
Services and public	0.65	0.14	39%	80%
Capital and other	0.70	0.19	35%	75%
Total	5.25	1.39	35%	74%

Table 1
Summary of potential impacts of sectoral policies

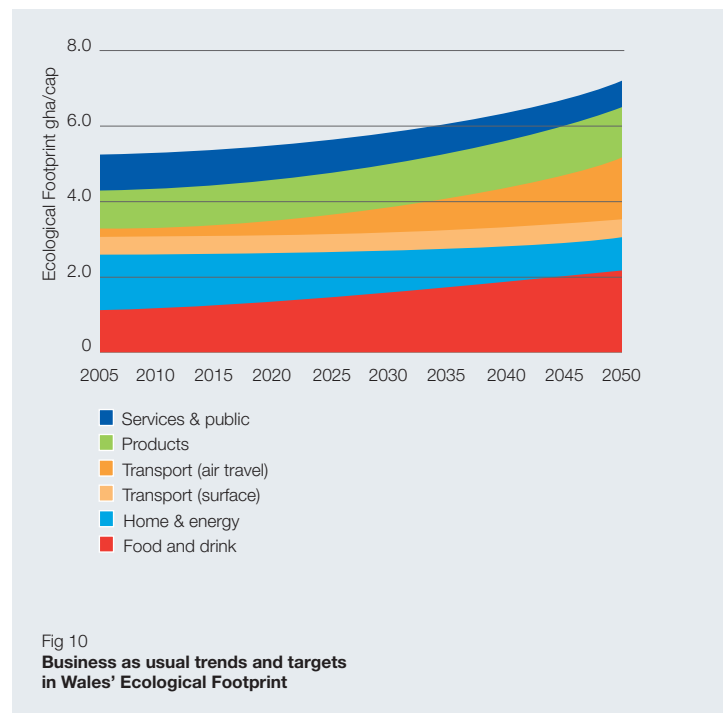


Fig 10
Business as usual trends and targets in Wales' Ecological Footprint

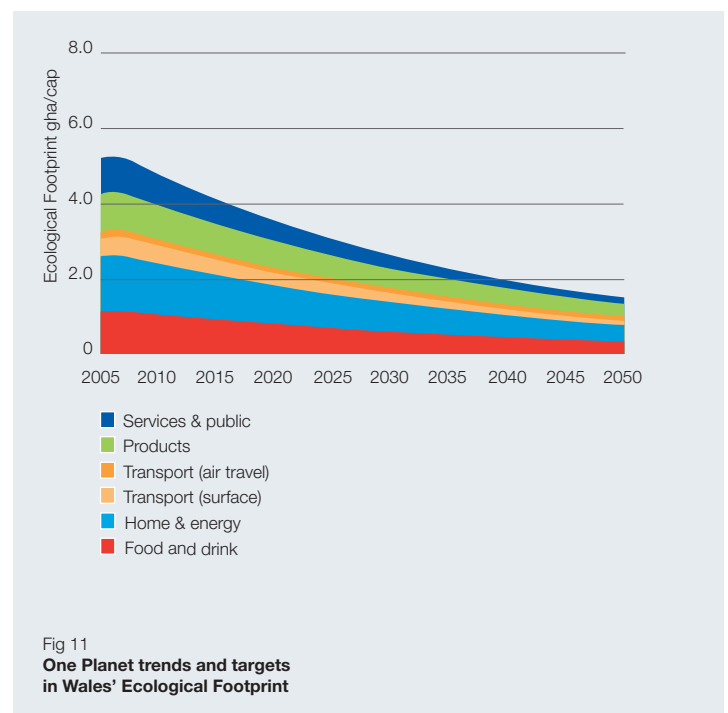


Fig 11
One Planet trends and targets in Wales' Ecological Footprint