



ENVIRONMENTAL LIMITS IN YORKSHIRE & HUMBER

A Discussion Paper by YHREF for Yorkshire & Humber Assembly

S U M M A R Y V E R S I O N



regionaleenvironmentforum

the environmental knowledge and advocacy network for Yorkshire & the Humber

www.yhref.org.uk

The UK Sustainable Development Strategy includes the principle of 'living within environmental limits' and subsequently this principle has fed into key national documents, such as Planning Policy Statement (PPS) No.1, and regional documents – most notably the emerging Integrated Regional Framework (IRF). YHREF has been commissioned by Y&H Assembly to produce this discussion paper. Our brief was to examine the extent to which the region could, in reality, quantify its environmental limits and apply them to regional policy and monitoring.

Drawing on recent work by DEFRA and others, we have defined an environmental limit as 'the point beyond which an environmental asset ceases to function effectively in its own right, and/or to provide the benefits to society that society considers valuable.'

This definition emphasises that identifying an environmental limit is very often a political choice, rather than a scientific observation. That choice is made by asking the questions, 'How much do we value this environmental asset?' and 'How confident are we that our policies and aspirations are not going to compromise the value of this asset?'

It is therefore vitally important not to view environmental limits as absolutes – as fixed ceilings up to which we can push environmental impacts 'to the limit', and beyond which the consequences are rapid and catastrophic. In policy terms there is clearly no point in pushing impacts to the limit, because the risks of overshooting that limit would become much greater. Instead the important issue is identifying the necessary direction of travel to minimise the risks.

In this context our key findings are as follows.

The 'precautionary principle' dictates that we assume a suite of environmental limits operates at both global and local scales, and that policymaking should set trajectories that minimise the risks of exceeding those limits.

'Living within environmental limits' is a central tenet of sustainable development. We have put forward a useful, practical way of thinking about environmental limits that is relevant to policymakers in the region. As such it should be seen as part of the sustainable development toolkit that complements, and does not duplicate, other principles such as 'one planet living', 'triple bottom line accounting' and 'low carbon economy'. It is particularly useful in comparing global and local environmental imperatives.

We have structured our discussion of environmental limits around 'Six Threes' (see next page) which take the reader step by step through the overall rationale, through what it means in policy terms to apply environmental limits, and through the mechanisms for making and implementing decisions.

Our analysis of current regional monitoring (for the IRF) shows that in many topic areas the region's strategies are already heading in the right direction on environmental limits (eg biodiversity, water quality and air quality) but that in other topic areas there are substantial challenges – notably around energy, waste and resource consumption, and in the many functions of the built environment.

We have also demonstrated that an environmental limits approach could be very helpful in improving the monitoring of progress on the landmark issues set out in the IRF.

Six Threes

3 Planets

The number of planets we'd need if everybody in the world consumed resources at the rate we do in Yorkshire & Humber. Individual actions can reduce us to 2 planets. Public (government) actions can further reduce us to 1 planet

- www.oneplanetliving.org/developers.html#definition

3 Bottom Lines

The three types of capital – human, environmental and financial – that we need to accrue together to achieve sustainable development.

- http://en.wikipedia.org/wiki/Triple_bottom_line

3 Types of Environmental Limit

- The capacity of the natural environment to sustain itself
- The capacity of the natural environment to support human activity and aspiration
- The ability of the human habitat to adapt to environmental change

3 Principles to Living within Environmental Limits

- Making space for environmental capital
- Reducing pollution & waste in the round
- Reducing consumption of environmental capital

3 Levels of Environmental Limit

- The technical 'holding' limit that must be maintained to avoid further environmental degradation
- The political/cultural limit that is deemed by society to be an acceptable level of environmental impact
- The restorative limit that enables environmental conditions to improve and risks to society to reduce.

3 Key Mechanisms for Change

- Legislation and regulation
- Political and economic incentives and penalties
- Free market activity and individual choice (supported by information and education).

Rationale: One Planet Living and beyond

One Planet Living

One Planet Living is essentially about consumption of resources – which could theoretically be reduced by recession as well as by transformation. It embeds the principle of global equity, and is therefore only global in what it measures.

Triple Bottom Line

Triple Bottom Line demands that there is no net trade-off between the different forms of capital – financial, social and environmental

Low Carbon Economy

Low Carbon Economy prioritises carbon emissions above all other production and consumption impacts on the environment - reducing the direct climate change impact of the economy, but with no inherent requirement to reduce overall resource use.

Environmental Limits

Environmental Limits approach enables global and local environmental objectives to be weighed against each other, and deals with social and economic factors via the Russian Dolls model – ie that the environment is ultimately a limit on socio-economic activity, and combinations of economic momentum and social/cultural/political context act as limiting factors on our ability to correct the natural balance of the environment.

Therefore an understanding of environmental limits is a crucial piece of the toolkit for sustainable development, operating as well as, not instead of, the principles of one planet living, triple bottom line and low carbon economy.

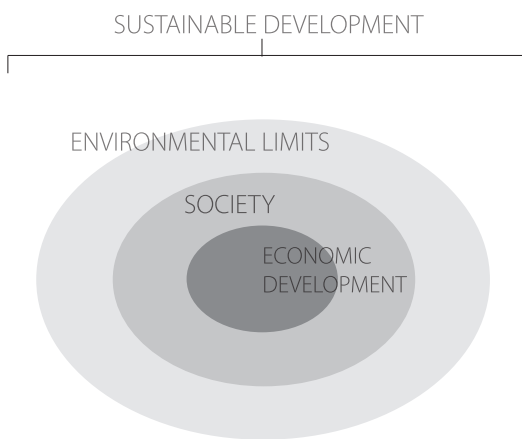


Figure 1: The Russian Dolls Model of Sustainable Development

Source: Scottish Government, after O'Riordan

Monitoring

We examined the current application of the 'holding' and 'restorative' levels of environmental limit to the regional indicators for 'High Quality Environments', derived from the annual Progress in the Region reports and now being adapted to the IRF. We also analysed how pursuing our 3 principles of 'living within environmental limits' relates to the IRF's identified 'landmark issues' and generates a set of potential measures.

In many cases, there are already well-established measures and targets in the region that we can use to quantify 'holding' limits. This is particularly true of more longstanding environmental topics such as biodiversity and water quality.

Furthermore, there are also several topics where a restorative framework is in place or emerging – enabling us to quantify ‘restorative’ limits. In most cases these are to be found within a range of strategic documents such as the Regional Spatial Strategy or the Regional Forestry Strategy.

The topics where an understanding of limits is less clear are, however, those that might be described as critical in addressing climate change and other landmark issues. Energy and waste are perhaps least well covered, despite a wealth of data and specific target-setting on energy and waste. There are probably two reasons for this discrepancy:

- the political difficulty of making real, strategic progress on these topics has so far resulted in targets that are politically conservative, rather than driven by awareness of any looming environmental limits;
- the environmental limits on energy and waste are far more global than local, whereas biodiversity, water quality and air quality have clearer local implications, and are therefore more tangible.

This is perhaps paradoxical, given that waste and energy are much easier to quantify numerically than many other environmental topics, and should therefore lend themselves well to clearer target-setting. We might infer from this finding that environmental limits are more usefully identified by their principles and trends than by their statistical quantities.

Suggested Next Steps

1. Use our monitoring analysis as the basis for a more detailed study to determine where additional data gathering and target-setting would be useful.
2. Produce a short, handy guide to using environmental limits, drawing on the findings of this paper, for use in dissemination a basic understanding of the topic to a wide audience.
3. Examine the workability of the ‘3 principles of living within environmental limits’ by way of case studies and seminars, with a view to informing the implementation of the Regional Spatial Strategy and the next review of the Regional Economic Strategy.
4. Look more closely at applying environmental limits to economic and social issues as a potential means to make and monitor progress against the IRF’s landmark issues.
5. Embed the findings of this paper in the reviewed Regional Environmental Enhancement Strategy.
6. Use all the above pieces of work to set the scene for how environmental limits could helpfully inform a future ‘Single Regional Strategy’.

Table 1:
Current application of environmental limits to IRF Indicators (High Quality Environments)

IRF Indicator	Holding Limits/Targets	Restorative Limits/Targets
Biodiversity	<ul style="list-style-type: none"> No-net-loss approach to range of assets, including: SSSIs ancient/semi-natural woodland 	<ul style="list-style-type: none"> Becoming established through Regional Forestry Strategy and Regional Biodiversity Strategy
Water Quality	<ul style="list-style-type: none"> Chemical water quality standards measured by concentration of pollutants 	<ul style="list-style-type: none"> Well-established restorative framework measured by incidence of key species Water Framework Directive
Air Quality	<ul style="list-style-type: none"> Health-based thresholds for concentrations of key pollutants in ambient air quality Holding levels established within AQMAs Declaration of new AQMAs extends geographical coverage Limits on point source pollution emissions 	<ul style="list-style-type: none"> No restorative framework at present AQ Framework Directive should assist Could be linked to Regional Biodiversity Strategy, Green Infrastructure, Local Area Agreements, Climate Change Action Plan, Public Health Strategies
Waste and Resources	<ul style="list-style-type: none"> Landfill reduction targets Municipal waste minimization targets No measures in place for resource use eg water resources or construction materials 	<ul style="list-style-type: none"> Regional Waste Strategy not currently defining a restorative process for waste – what would such a process look like? Waste minimization by type in commercial sector crucial gap in targets Recycling Action Yorkshire etc progressing on market solutions
Energy	<ul style="list-style-type: none"> CO2 reduction targets only an indirect limit Renewable Energy Capacity Study suggests maximum scope for RE generation 	<ul style="list-style-type: none"> Regional Energy Strategy only really covers electricity supply No demand management targets for electricity or other energy uses Kirklees MC leading way in retro-fitting energy efficiency to housing stock Market solutions emerging
Ecological Footprint	<ul style="list-style-type: none"> Much data now available No policy limit on footprint set 	<ul style="list-style-type: none"> Aspirational target for region of 25% footprint reduction in 10 years – no strategy to achieve as yet
Green Infrastructure	<ul style="list-style-type: none"> Existing measures restricted to standards for proximity to greenspace Recent urban floods improving knowledge of costs and risks Crucial gap on measurement of urban heat island effects 	<ul style="list-style-type: none"> New work emerging for Regional Spatial Strategy implementation Sub-regional initiatives esp in South and West Yorkshire Needs links to Climate Change Action Plan, Flood Risk Management Plans, Public Health Strategies
Built Environment, Built and Natural Heritage	<ul style="list-style-type: none"> No-net-loss approach to key built heritage, eg listed buildings, scheduled ancient monuments State of the Historic Environment Report provides baseline Other built environment indicators elsewhere in IRF: quality of place index; index of environmental deprivation; housing density; percentage of development on brownfield land; listed buildings at risk; extent and quality of public transport Spatial/social transport impacts not measured eg barrier effect of major roads 	<ul style="list-style-type: none"> Restorative framework exists to some degree through: YF urban and rural renaissance programmes; landscape character assessments; conservation area action plans; design statements; Regional Cultural Strategy.... but not integrated. Data and strategy needed for general built fabric (eg embodied energy, design and performance of commercial buildings, accrual of future built heritage)

Table 2:
How the 3 principles of 'living within environmental limits' can be applied to monitoring progress on the IRF's landmark issues

IRF landmark issue	Making Space for Environmental Capital	Reducing Pollution & Waste in the Round	Reducing Consumption of Environmental Capital
Widening social inequalities	<ul style="list-style-type: none"> • Access to open space and green space • Inequality of exposure to environmental risks, eg flooding • Opportunities for growing own food 	<ul style="list-style-type: none"> • Inequality of exposure to pollution (especially air and noise) • Inequality of access to waste recycling • Inequality of access to sustainable travel choices 	<ul style="list-style-type: none"> • Inequalities in consumption, especially in travel choices and domestic energy use
Transport	<ul style="list-style-type: none"> • Space for sustainable travel infrastructure • Demand for travel from poor local environments and towards high quality environments • Impacts of space occupied by road vehicles (moving and parked) 	<ul style="list-style-type: none"> • Road vehicle mileage and occupancy • Traffic congestion • Empty running of freight vehicles • Capacity and usage of public transport • Usage of non-motorised transport • Efficiency of road and rail vehicles 	<ul style="list-style-type: none"> • Location and accessibility of new development, and of provision of shops and services • Relative cost and reliability of different travel modes • Application of demand management
Climate change, energy & resource use	<ul style="list-style-type: none"> • Space for renewable energy generation • Space for sustainable waste management • Space for green infrastructure providing flood risk management, sustainable drainage and passive urban cooling 	<ul style="list-style-type: none"> • CO2 emissions by end user • Commercial recycling rates by material type and business sector • Total waste arisings • Energy efficiency of all buildings (usage and embodied) 	<ul style="list-style-type: none"> • Application of demand management measures for all energy types, water and primary materials
Housing markets and affordability	<ul style="list-style-type: none"> • Relationship between environmental quality and housing cost • Positive planning for environmental capital in new housing and regeneration 	<ul style="list-style-type: none"> • Relative environmental performance of housing by location, type and tenure • Recycling of demolition waste 	<ul style="list-style-type: none"> • Housing density • Consumption behaviour by housing location, type and tenure
Public health and obesity	<ul style="list-style-type: none"> • Space for outdoor exercise, recreation, rehabilitation and food-growing 	<ul style="list-style-type: none"> • Access to less-processed foods 	<ul style="list-style-type: none"> • Energy and waste footprint of healthcare and food & drink sectors
Skills and business innovation	<ul style="list-style-type: none"> • Design of buildings and provision of business and academic/research premises integrating environmental capital 	<ul style="list-style-type: none"> • Business innovations and acquisition of skills in sustainable design of buildings and products • Innovations in waste and pollution reduction 	<ul style="list-style-type: none"> • Relative eco-footprint of new businesses and established businesses • Take-up of innovative measures to reduce consumption in business and academic/research sectors
Violent crime/fear of crime	<ul style="list-style-type: none"> • Integrated design of outdoor spaces • Relative levels of crime/fear of crime in different environments 	<ul style="list-style-type: none"> • Light pollution from safety-related lighting • Distances traveled/travel choices made to avoid fear of crime 	<ul style="list-style-type: none"> • Consumption patterns associated with crime prevention/avoidance eg policing, surveillance • Relative impacts of crime on provision of different services, eg local shops, public transport



For instance, on the planet Earth, man had always assumed that he was more intelligent than dolphins because he had achieved so much--the wheel, New York, wars and so on--while all the dolphins had ever done was muck about in the water having a good time. But conversely, the dolphins had always believed that they were far more intelligent than man--for precisely the same reasons.

Douglas Adams, *The Hitchhiker's Guide to the Galaxy*