ecosystemmarkets
TASK FORCE

Realising nature's value: The Final Report of the Ecosystem Markets Task Force

March 2013

Contents

The Ecosystem Markets Task Force: introduction

The Ecosystem Markets Task Force is a **practical, business led review** of the business **opportunities that arise from valuing nature correctly**.

The work of the Task Force is a **key commitment in the Government's Natural Environment White Paper,** 'The Natural Choice'[1]. The White Paper's ambition is to create "a green economy, in which economic growth and the health of our natural resources sustain each other, and markets, business and Government better reflect the value of nature."

The recent Industrial Strategy: UK Sector Analysis from the Department for Business, Innovation and Skills identified **"increasing demand for environmental products, processes and standards" as one of the main four drivers for growth** over the next decade[2].

The Government asked the Task Force to **review the opportunities for UK business from expanding green goods, services, products, investment vehicles and markets which value and protect our natural environment.**

The Task Force will deliver this report to three Secretaries of State – Environment, Food & Rural Affairs; Business, Innovation & Skills; and Energy & Climate Change – through the Green Economy Council, in March 2013.

Task Force members

- Ian Cheshire, Group Chief Executive, Kingfisher plc (Chair of Task Force)
- Kim Buckland, Co-Founder, Liz Earle
- Vivienne Cox, former Chairman, Climate Change Capital
- Jack Frost, Director, Johnson Matthey Fuel Cells
- David Hill, Chair, Environment Bank
- Russ Houlden, Chief Financial Officer, United Utilities
- Martin Roberts, Director, University of Cambridge Natural Capital Leaders Platform
- Amanda Sourry, Chairman, Unilever UK and Ireland
- Mike Wright, Executive Director, Jaguar Land Rover
- Peter Young, Strategy Director, SKM Enviros and Chairman, Aldersgate Group

Next Steps

The Government will issue its official response to the Task Force's report later this year. In the meantime the Task Force will work with business leaders and organisations such as CBI, BITC and Cambridge Natural Capital Leaders Platform to get nature firmly onto business agendas. The Task Force would like to reconvene in one year's time for a discussion with Government and other business leaders to assess progress since the Task Force's report, and possible ways forward.

1 http://www.defra.gov.uk/environment/natural/whitepaper/

2 http://www.bis.gov.uk/assets/BISCore/economics-and-statistics/docs/I/12-1140-industrial-strategy-uk-sector-analysis.pdf

A new lens for business

Business is often unaware of its **true reliance on nature**. Natural systems provide us with food, shelter, water, energy, health and air and protect us from costly floods. In many cases, nature's resources and services can provide all these dividends indefinitely, provided we look after them.

A **new way of looking at nature** is currently being pioneered by companies large and small. They recognise that nature is a provider of vital resources and services, and that its value needs to be accounted for in both their day to day operations, as well as in investment decisions.

These companies have seen how the traditional linear model of business and consumption – take, make, discard – degrades the essential services provided by nature, including its ability to deliver pest control, carbon capture, water replenishment, pollination, resource renewal and reduced flood risk. It continues to degrade biodiversity.

The **new model for business** seeks to integrate the real value of nature into its thinking. It understands how nature provides a wealth of resources and services that we currently take for granted and count as "free", and that it is as vital to invest in these services as we would in innovation or infrastructure. These companies are not just taking notice of the market price of natural resources: they also assign value to the services provided by nature and are finding ways to make what was once the invisible value of nature's resources and services apparent in their business models. As a result such businesses are making their companies more **resilient**, managing **risk** more effectively, concentrating on the right **relationships** with customers and suppliers and strengthening their reputations. For the economy as a whole this shift in understanding will **drive innovation, improve resilience and enhance competitiveness**.

The very first step we all need to take is to be aware of how each of our businesses depends directly or indirectly on natural ecosystems. Indeed future opportunities for businesses to create wealth will be enhanced by helping to increase nature's health and services, not by continuing to deplete nature as has happened to date.

A new economy

The CBI's 2012 report on green business[3] highlighted that the idea that 'going green' might further dent economic recovery was in fact a false debate. Indications from recent data shows that green business has remained resilient; the CBI report estimated that green growth contributed at least a third of all the growth in the British economy in the last two years. This captures economic activity across all sectors and value chains that contribute, either directly or indirectly, towards reducing environmental impacts or adapting to environmental changes. UK sales in the green economy increased by 4.7 per cent to £122.2 billion in 2010/11 in an estimated global market of £3.3 trillion, placing the UK 6th globally[4].

The overall context for all the ideas and suggestions in this report is that we are seeing the real possibility of the emergence of a **new economy:** one that fully integrates the real value of nature.

The implications for this are far reaching and include the following:

- business needs to factor the real value of nature into its thinking now
- business models will have to change as pressures on nature mount, and society and governments react
- a whole new set of business models will evolve based on the Circular Economy approach
- we will need new measures and standards to help reinforce these changes
- regulators and government should support market mechanisms to help accelerate this trend
- building on its leading academic position, UK has a new knowledge economy opportunity in this field.

3 http://www.cbi.org.uk/media/1552876/energy_climatechangerpt_web.pdf

4 http://www.bis.gov.uk/assets/biscore/business-sectors/docs/l/12-p143-low-carbon-environmental-goods-and-services-2010-11.pdf

The business reality is that change will happen: as resource prices face upward pressure, or as governments act to protect nature through regulation or taxes, to try to reflect the true costs of what were once seen as free natural products and services. In addition, as pressure on the natural world builds, some critical changes will be unpredictable; for example, past collapses in fish stocks were not preceded by noticeable price rises or tax interventions. There are both risks and opportunities for business here. The companies that can lead on this issue and innovate will see both opportunity and reputational wins. The followers will benefit as workable solutions are confirmed and can be implemented, but the laggards are likely to lose out from price pressures and loss of share to nimbler rivals.

The concept of the **Circular Economy** is beginning to be embraced by leading companies such as Jaguar Land Rover and B&Q, as well as bodies such as the Ellen MacArthur Foundation[5] working with McKinsey. In essence it challenges us to break away from a take-make-discard model and instead redesign the whole model to preserve materials through reuse/recycle, zero waste and the use of renewable energy[6]. This model can also save energy consumption and emissions from production.

A practical example is in carpets where some firms, such as Interface Flor and Desso now produce carpet tiles designed to be taken back at the end of their life, split into yarn and backing and then fully recycled, creating a closed-loop zero waste system. Coca Cola recently pledged to reduce the footprint of the 2014 FIFA world cup by launching a plastic bottle recycling scheme with bottles to be reused in the linings of 6,773 seats in Rio de Janeiro's new Maracana Stadium.

We are also seeing **new models** evolve with trends such as collaborative consumption – people using Streetcar rather than buying their own car – and thinking about systems differently, for example water companies paying farmers to use less fertilisers rather than build an expensive energy-intensive plant to take the pollution out later. All these changes radically cut the resource and natural capital impact of the business model making it more sustainable.

Many of these changes start from businesses realising how they are **dependent** on natural systems. Some are obvious, such as the brewing or mining company understanding their reliance on water supply, but more indirect links abound. For example, it takes 134 litres of water to produce a cup of coffee, 20,000 litres to produce a kilo of chocolate[7] and 35 tonnes of fresh water to make a single tonne of artificial fertiliser. It takes over 50,000 litres to manufacture a car; awareness of their reliance on water meant that UK car manufacturers reduced their water consumption per vehicle by 50% since 2000[8]. This is because the future price, quality and availability of water are classic ecosystems issues, and businesses cannot simply count on future supply always being there.

There are two other key themes that cut across some of our individual recommendations. Firstly we need better **tools and metrics** to understand the role nature plays in our businesses: tools and metrics that will integrate financial, environmental, social and governance information in a concise, consistent and comparable format.

5 http://www.ellenmacarthurfoundation.org/

6 A Circular Economy Task Force of businesses has been convened by the Green Alliance to work with Defra and BIS to help inform Government thinking on resource security, as outlined in the Government's Resource Security Action Plan http://www.green-alliance.org.uk/grea1.aspx?id=6571

7 http://www.waterfootprint.org/?page=files/productgallery

8 http://www.smmt.co.uk/wp-content/uploads/SMMT-13th-Sustainability-Report-2012.pdf

There is a massive amount of work underway, if anything too broad, both with bodies such as Accounting for Sustainability[9] and WBCSD[10] providing guidance, and individual companies such as Puma and Unilever trying to measure the full environmental impacts of their businesses[11]. At Rio +20, 86 private companies and over 50 countries signed a call for natural assets to be reflected in business and national accounts[12]. The challenge here is that financial measures have been developed for over 500 years and are well understood, whereas standards for nature are at the financial equivalent of the 14th century, before the development of double-entry bookkeeping.

Despite this, two further detailed points can be made; firstly measures need not be perfect to be useful, indeed the perfect may be the enemy of the good here. Secondly, alongside national ecosystem account in development by the Office for National Statistics, Defra and the Natural Capital Committee[13], we need company level schemes – ideally endorsed by the International Accounting Standards Board[14] – since the corporate view spans countries and sectors. Groups such as the TEEB for Business Coalition[15] need to be supported in their attempt to standardise metrics and encourage their adoption. This should also be supported by the institutional shareholders, who will benefit from a more rounded view of corporate performance and resilience.

The second and final theme is that the whole field of improving the understanding of nature in business offers a new **knowledge economy** opportunity and one where the UK is very well placed. Consultancy is the most immediate opportunity, along with technical standards, legal and financial services and training. It opens up export markets to more environmentally vulnerable countries, and more effective ways of using business to deliver national and international aid programmes. This should be underpinned by academic resources and the UK is well positioned with centres such as Universities of East Anglia and Cambridge[16] which can be international leaders, and should be encouraged by Government.

9 http://www.accountingforsustainability.org/about-us

10 http://www.wbcsd.org/home.aspx

11 http://about.puma.com/new-puma-shoe-and-t-shirt-impact-the-environment-by-a-third-less-than-conventional-products/; http://www.unilever.co.uk/sustainable-living/uslp/

12 http://sustainabledevelopment.un.org/futurewewant.html

13 http://www.defra.gov.uk/naturalcapitalcommittee/work/accounting/national-accounts/

14 http://www.ifrs.org/The-organisation/Pages/IFRS-Foundation-and-the-IASB.aspx

15 http://www.teebforbusiness.org/

16 http://www.uea.ac.uk/environmental-sciences; http://www.cpsl.cam.ac.uk/Home/About%20Us.aspx

Task Force Recommendations: Overview

The Task Force has focussed its work on identifying win-win business opportunities that deliver **substantial benefits for both nature and business**. These opportunities have been grouped under four broad themes: *Carbon and Markets for Nature,* the *Food Cycle*, the *Water Cycle* and *Natural Capital: cross cutting themes*.

There are 22 opportunities in total, which have been filtered and prioritised based on the scale of the issue, its relevance and potential impact. The Task Force has made five Priority Recommendations from these, which are as follows:

1) **Biodiversity Offsetting: securing net gain for nature through planning and development** (Carbon and Markets for Nature)
2) **Bio-energy and anaerobic digestion on farms: closing the loop using farm waste to generate energy** (Food Cycle)
3) **Sustainable Local Woodfuel: active sustainable management supporting local economies** (Carbon and Markets for Nature)
4) **Nature-based Certification & Labelling: connecting consumers with nature** (Food Cycle)
5) **Water Cycle Catchment Management: integrating nature into water, waste water and flood management** (Water Cycle)

The full list of Task Force Recommendations is as follows:

Carbon and markets for nature

- **Biodiversity offsetting: securing net gain for nature through planning and development**
- **Sustainable local woodfuel: active sustainable management supporting local economies**
- Carbon reduction through investing in nature
- Environmental bonds

Food cycle

- **Bio-energy and anaerobic digestion on farms: closing the loop using farm waste to generate energy**
- **Nature-based certification and labelling: connecting consumers with nature**
- Common Agricultural Policy
- Food waste

Water cycle

- **Water cycle catchment management** (including water and wastewater catchment management, Sustainable Urban Drainage Systems and soft flood defences)
- Water trading
- Water supply pipe ownership
- Water metering
- Very long term planning
- Privatisation of flood defences

Natural capital: cross-cutting themes

- Managing natural resource security
- Using nature to enhance resilience
- Business accounting for nature: mainstreaming standards and metrics
- Knowledge Economy: UK expertise enabling business opportunities to enhance nature

Approach

The Task Force has followed three steps in developing its key recommendations and priorities for action, by assessing:

1. **'what's the problem?'** (where do the market failures and environmental problems lie);
2. **'what's the evidence** and how do we categorise where the opportunities lie?'
3. **'what actions** or recommendations could the Task Force propose (for business or government) to enable and secure these opportunities?'

In following these steps the Task Force has been looking for priorities that will deliver both opportunities to business and real gains to nature. As part of this process, a significant evidence base has been generated over the last year which has helped to inform Task Force thinking, including wide-ranging analysis of all the opportunity areas set out here (see Section 5). Given the breadth of the subject, it has not been possible to undertake business cases or impact assessments to test in detail the likely costs and benefits and risks of action. This will be for others, including government, to take forward as part of the next steps.

Case studies

This report contains a number of case studies to help illustrate some of the ideas and Task Force recommendations. Case studies can be found at the end of each section under 'Further Recommendations'.

Ecosystem Markets Task Force
Priority Recommendations

Priority Recommendation 1

Biodiversity offsetting: securing net gain for nature through planning and development

The opportunity

Planning rules in England seek to protect, mitigate and compensate for the impacts of new development on biodiversity. But there are weaknesses and inefficiencies in the current system which slow down necessary development, yet still lead to deterioration and fragmentation of nature. We need a system in which unavoidable net impacts on biodiversity of new development are more than compensated by restored and created habitats elsewhere through an efficient market. Designed correctly, a nationwide system of biodiversity offsetting would[17]:

- **save developers time and money** through reduced risk and uncertainty and a more streamlined planning approval process, as well as offering reputational benefits and more efficient and valuable net developable areas. Any upfront costs to developers would be factored into residual land values which are substantially uplifted as a result of a planning permit.
- **revolutionise conservation in England** by delivering restoration, creation and long-term management, of in excess of 300,000 hectares of habitat over 20 years; incentivise location of development at sites of lower nature value; contribute to the delivery of the Lawton Review vision for a larger, more coherent ecological network.
- **stimulate the competitive growth of businesses**, especially rural SMEs, in delivering and restoring natural habitats; and also of various intermediary services, estimated to be worth at least £500m p.a.

This is **not** about companies offsetting impacts on biodiversity across all their operations. It is not a raft of new burdens on developers nor is it a "license to trash" nature. It is about better regulation, developing a well-defined market which delivers "net gain" for nature which the current planning system has generally failed to do.

The Task Force recommends:

a) ***Government should clearly signal its intention to mandate a national system of biodiversity offsetting across England, in which planning authorities are required to use offsetting to deliver a net gain for nature from all new developments.***

b) ***Government should start by mandating offsetting in Defra's existing voluntary pilot areas, and in parallel conduct a full impact assessment to define the overall case for delivering both net gain for nature and business benefits.***

The challenges

The Task Force is aware this is not simple. A credible and robust system of offsetting must have:

- **sufficient market scale** to maximise demand, growth of competitive supply and the scope for pooling habitat restoration/creation projects;
- **existing safeguards (including legislation to protect species and habitats) maintained** to prevent and mitigate impacts on nature;
- **a transparent institutional and market framework** based on clear guidance and metrics, a registry of supply, accredited standards and brokers, together with the necessary capacity in planning authorities **account made of the upfront costs and benefits to businesses, which could differ by sector**;

The Task Force finds the case for mandating an offsetting system compelling, but has not conducted a full impact assessment. As part of that assessment, making the current pilots mandatory for planning authorities to apply would yield vital evidence on the potential for mandatory offsetting to be rolled out across the country.

17 Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature, pp. 18-39.

Priority Recommendation 2

Bioenergy and anaerobic digestion on farms: closing the loop, using farm waste to generate energy

The opportunity

There is potential for greater use of waste in anaerobic digestion (AD) on farms. Farms with AD facilities would benefit from lower energy costs, reduced waste disposal costs, increased energy security, and could tap into the market for selling energy back to the grid. Using livestock waste (e.g. manures and slurries) and other farm waste (e.g. poultry litter) as feedstock for AD avoids costs of dealing with it more traditionally. There may also be opportunities for using food waste which would otherwise be sent to landfill or incineration/combustion.

Conversion of farm waste to energy saves greenhouse gas emissions associated with the alternative production of energy, reduces emissions of methane from manures and agricultural residues and can deliver air and water quality benefits. Use of the organic fertiliser (digestate) produced as a by-product also reduces greenhouse gas emissions (saving 5 tonnes of CO_2 for every 1 tonne of nitrogen fertiliser not used[18]) and provides a source of water for crops when rainfall is limited. There may also be a potential market for the digestate to be sold either as fertiliser or alternatively even to produce low-grade plastic or food sources for insect production. If food waste is used in AD as well, this could avoid between 0.5 and 1 tonne of CO_2 equivalent for every tonne of food waste that is re-purposed.

In Germany there are 7,400 AD plants, which are generally operated by farmers and primarily used to produce electricity (around 2,500 MW in total[19]). The NFU is working towards growing the UK's number of on-farm AD plants from 24 to 1,000 by 2020; combined with 200 larger waste-linked AD facilities, these plants could generate 800 MW of electrical capacity, supplying about 6 terawatt-hours (TWh) of electricity and potentially another 6 TWh of heat – about 4.5% of the UK's renewable energy target[20].

The Task Force recommends:

a) ***Government should build on existing financial support schemes for AD by establishing a specific assurance scheme to encourage financial institutions to offer loans and invest in AD.***

b) ***The Green Investment Bank should consider supporting farm level AD on an aggregated basis.***

c) ***Government should encourage research into the possible uses of, and market for, digestate.***

d) ***Government should explore the potential for further use of biogas on farms.***

The challenges

- The Task Force welcomes the work underway within industry, DECC and Defra to explore the barriers to the growth of small-scale AD[21]. A major barrier appears to be that the costs are too high and the incentives are too low, though there may be a reduction in costs as small-scale AD technology progresses. Planning and permitting rules may also act as a barrier in some cases.
- Investors need to be convinced to support the substantial capital costs for AD on farms, as AD can still be seen as new and risky; long term commitment is necessary. Contracts to receive food waste for digestion would need to be of a certain length.

18 Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature

19 Personal communication from Dr Manfred Stefener

20 Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature

21 http://www.defra.gov.uk/publications/files/anaerobic-digestion-strat-action-plan.pdf

- To be economically and technically viable, AD plants may require not just manures and slurries but also co-digestion with purpose-grown energy crops or food waste. There are limits to the extent to which food waste can be used for farm-level AD systems, including technical concerns about co-digesting farm waste with food waste. More biogas is produced using crop silage, but there are concerns about intensively grown energy crops displacing food production and biodiversity. Germany's AD plants are reliant on feed-in tariffs and heavy use of energy crops.
- Currently much of the heat produced from AD is wasted. The costs of using the heat are high where AD is precluded from claiming the Renewable Heat Incentive in some cases.
- Connection to the gas grid, and therefore the ability to sell biogas, can be difficult if a connection is not available or where it is too costly, in which case the focus would be on the less-efficient production and sale of electricity.
- To ensure a sustainable outcome, all digestible material should be aggregated together locally.

Priority Recommendation 3

Local woodfuel supply chains: active sustainable management supporting local economies

The opportunity

There is an opportunity to bring more unmanaged woodlands into active, sustainable management for woodfuel by raising awareness of the environmental benefits of doing so, and supporting the emergence of the small and medium sized biomass heat market. Businesses using the woodfuel may enjoy potentially reduced costs, local and secure fuel supplies, reduced energy price volatility and reputational benefits and woodland owners can bring their woodlands back in to management, because they can be more confident of an end market for their wood. This opportunity could support the rural economy and create jobs along the supply chain. Development of the woodfuel resource could by 2020 generate over £1 billion of GVA to the UK economy annually and lead to the creation and support of 15,300 jobs[22].

This is not about intensive harvesting of UK woodland for use in large scale power stations; it is about ensuring that organisations that wish to pursue renewable heat can confidently do so using sustainable, local resources. This is a win-win for business and nature. The Task Force welcomes the recognition of this opportunity area in the Independent Panel on Forestry's final report, and the subsequent Government Forestry and Woodlands Policy Statement.

The Task Force recommends:

a) ***Businesses with energy needs should consider using local woodfuel sources that also deliver local environmental benefits, and private woodland owners should explore the opportunity of supplying woodfuel.***

b) ***Government should work with the emerging conclusions from the industry-led "Grown In Britain" Action Plan to agree practical next steps to accelerate the uptake of opportunities and stimulate the organisation of local supply chains.*** *As part of this, Government should encourage woodfuel use in public buildings such as schools and leisure centres.*

The challenges

- The main barrier seems to be lack of confidence in the long-term consistency of the supply chain preventing demand, and lack of demand holding back the confidence to increase supply, so something of a chicken-and-egg scenario results.
- It appears that the conditions to support the market are in place but are not fully visible. Grants are important due to large capital costs of woodland management. There may be potential to replace grants for boiler installation with 'soft loans', because of falling payback times. More advice about boiler sourcing and installation for the end user may be necessary.
- Technical support and training may be needed to ensure managing woodland for fuel is done sustainably. There are concerns over some of the carbon benefits claimed when the woodland isn't additional; it is important that spurious benefits are not claimed. We are also aware that woodfuel is not the only way to increase woodland management but if a market solution can be initiated, then greater investment into woodland management will happen.
- Business support such as setting up local cooperatives and concentrating capital investment to get geographically clustered end users could help link local supply chains.
- There is already some indication that increased demand is driving up prices and, as a result, supply from woodland managers is increasing, but consistency in supply through lack of previous planning remains a problem. However, the Task Force feel that more could be done to ensure the opportunity is realised in an efficient and sustainable way by facilitating better end-to-end opportunities.

22 Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature, p. 57.

Priority Recommendation 4

Nature-based certification and labelling: connecting consumers with nature

The opportunity

Product certification and labelling schemes play an important role that benefit business and consumers. Yet the natural environment has a limited visibility in most product certification schemes, with notable exceptions such as LEAF, Marine Stewardship, FSC, organic and Conservation Grade. So there is potential for expanding the reach of these schemes and connecting consumers with nature. The TEEB for Business Report put a global (2010) value of $86 billion on certified agricultural and forest products benefiting biodiversity. These markets are estimated to increase more than fivefold to nearly $500 billion in 2020.

The links between business and nature go beyond food and timber and TEEB highlights a range of sectors in which certification could play a role[23]. Certification schemes could enhance ecosystem management, reduce ecosystem impacts, foster new affinities with landscape, and in turn can give participating firms greater market access, consumer loyalty and reputational benefits. Consumer preparedness to "trade up" to products certifying higher quality, sustainability standards and supply chain traceability should increase as growth resumes. So there is a real opportunity to strengthen and accelerate current trends and open up new market opportunities by putting ecosystems at the heart of product innovation, certification and labelling.

The Task Force recommends:

a) ***Business should explore and exploit untapped opportunities for rigorous and innovative nature-based certification and labelling that incorporate environmental protection.*** *Examples of markets with potential for better nature-based certification and labelling include livestock products, food service, clothing, tourism, recycled materials, wood and pharmaceuticals. Successful schemes will need:*
   - ***sufficient rigour*** *to show that they do genuinely protect or enhance nature's services;*
   - ***enhanced consumer awareness*** *of the linkages between products and nature*
   - *to encompass* ***full supply chain traceability***

b) ***Nature-based labelling schemes should co-ordinate their efforts in order to maximise the visibility of ecosystems in labelling and ensure consistent approaches to measuring benefits.***

The challenges

There is no easy way to standardise, but schemes can be made better and do much more for ecosystems:

- There must be no "greenwashing". Rigour is key. The scandal of undeclared horsemeat in processed beef products is potentially damaging for consumer confidence in labelling. Without transparent safeguards, monitoring and compliance, some firms could "free-ride" on improvements made by others, gaining reputational benefits.
- New schemes must go hand in hand with raising consumer awareness, otherwise the benefits to nature and business will be small and premia may get eroded. Lessons from successful (and unsuccessful) schemes need to be applied.
- Labelling can be costly and consumers can get confused by label proliferation. Scheme labels themselves can have little impact – it is the campaign behind them which affects consumer attitudes and decisions.
- The potential to benefit ecosystems needs to be considered in the development of policy and governance arrangements for certification and labelling, at EU and international level.

23 The *TEEB for Business* Report along with other key studies, underpinned the Task Force's Evidence Review (July 2012) of risks and opportunities by business sector.

Priority Recommendation 5

Water cycle catchment management: integrating nature into water, waste water and flood management

The opportunity

Water is a critical and life-supporting resource and is essential for economic growth. An integrated view of the water cycle is now encouraging fresh thinking and new opportunities to improve the way we manage our water throughout the cycle.

Businesses are increasingly recognising the commercial advantages of managing their risks and dependencies of access to high quality water supplies and dealing with surface water, trade effluent and wastewater in a way which is effective, efficient and environmentally sound. Water and wastewater companies are taking forward innovative catchment management approaches that can reduce energy intensive end of pipe treatment costs and deliver benefits to business customers and domestic consumers.

Better water cycle catchment management can help improve the quality of water entering the system, thereby reducing treatment costs, reduce the load on wastewater systems, reduce the risk of floods, preserve biodiversity, protect and enhance our natural environment for the benefit of local communities and tourists, and deliver economic benefits to government, businesses, consumers and farmers.

The Task Force recommends:

a) ***Greater incentives for water catchment management.*** *This will enable water companies, farmers and businesses to work together on a much larger scale using well established methods to deliver water quality, biodiversity, natural environment and economic benefits.*

b) ***More encouragement and incentives for wastewater catchment management.*** *This is an embryonic area needing both encouragement and financial incentives to enable sewerage companies, farmers and industrial businesses to work together to repair the damage done by past generations to our rivers and beaches, whilst also delivering economic benefits. High quality demonstration projects are needed to provide the necessary learning.*

c) ***Increased uptake of sustainable urban drainage systems (SUDS).*** *A package of incentives should be considered including exploring the potential introduction of a charge on new developments on greenfield sites which send surface water to public sewers rather than adopting a SUDS solution. Where a property has been connected to a sustainable drainage system the s.106 right to connect to a foul sewer should be removed giving the incentive to maintain the SUDS in operational condition.*

d) ***Greater use of soft flood defences.*** *These have a potential role in reducing the risk of flooding in more economical ways which is also better for biodiversity and the natural environment than traditional concrete based* solutions.

Full details of the Task Force's recommendations in these four areas are given in the Water Cycle section.

The challenges

- To realise the full potential of water cycle catchment management approaches is likely to require a strong clear policy framework that provides clarity and assurance for water companies, sewerage companies, farmers, industrial businesses and others who will contribute to the new solutions This challenge comes in the face of other pressures on the water cycle, including: climate change, changing patterns of water use and population growth.
- Catchment based approaches can take many years to deliver the full benefits, making it difficult to present a compelling business case for shorter time horizons. Potential benefits are harder to exploit due to multiple beneficiaries.

Ecosystem Markets Task Force
Further Recommendations

Carbon and Markets for Nature – further recommendations

There are a number of opportunities in this area which support the Task Force objectives of both supporting new business opportunities and markets, and environmental enhancement. These also support wider CSR agendas and corporate reputations. These opportunities are likely to deliver a range of benefits to the environment, including: new investment in woodland, wetlands and peatland for a range of benefits beyond carbon reduction including biodiversity, flood alleviation and recreational opportunities. A net gain for nature arising from development, and the potential of pooling offsets could establish larger more viable habitat creation and restoration sites, in accordance with John Lawton's vision of a larger, more coherent ecological network.

6. Carbon reduction through investing in nature

The opportunity

Companies can reduce their net GHG emissions, enhance their reputation and benefit nature through local and visible investment in woodland creation and peatland restoration, both of which provide a range of environmental benefits and provide new opportunities for sustainable land management and rural economic growth[24]. The majority of carbon offset credits currently purchased by European buyers are produced in the developing world, yet according to suppliers of carbon offset credits "European countries increasingly desire to *support projects that are closer to their homes and headquarters*"[25]. Restoration of the UK's peatlands – of which around 80% are degraded – offers further scope for reducing carbon emissions with wider benefits to the environment, such as water quality and biodiversity. Indeed, for this reason water companies are helping to fund peatland restoration in the northern and south western moors.

This is a nascent market, but it is on an upward trend. Market research suggests that UK demand to support nature-based carbon reduction projects is likely to exceed 1 million tons of carbon reduction per year and could potentially exceed 10 million tonnes[26]. The new requirement for listed companies to disclose their gross GHG emissions in their annual reports potentially underpins further demand for nature-based carbon abatement. For example, forest carbon projects certified to the Woodland Carbon Code can now be reported by companies under the Government's GHG Reporting Guidelines against their net emissions.

Peatland restoration would offer potential for sale to both the CSR voluntary market and, if suitably underpinned by a robust carbon code like woodland, eventually be eligible to be reported under the Government's GHG reporting guidelines. Growing markets in this area would not only stimulate competitive rural businesses, but provide new opportunities for knowledge providers, technical and market support services, which could have export potential.

The Task Force recommends:

a) ***Business of all kinds should explore the growing opportunities for innovative, nature-based carbon abatement***, *in particular around woodland and peatland as innovative ways of adding value to their CSR and carbon-reducing commitments.*

b) ***Government should further support market demand by including peatland restoration in its Greenhouse Gas Accounting Guidelines.***

c) ***Government should promote the Woodland Carbon Code and be proactive in testing and developing a similar code for peatland restoration.*** *A peatland code should learn lessons from the Woodland Code, but must be based on sound science and suitable metrics for measuring reductions in carbon emissions to underpin market confidence peatland restoration.*

The challenges

There are institutional, technical and economic issues which need to be worked through in order to develop an effective peatland code which would give confidence to investors. These include:

- developing robust estimates of the net greenhouse gas savings from peatland restoration;
- designing a robust governance for the code with oversight by a credible authority but which keeps transaction costs to a minimum;
- uncertainty over the economics of carbon-driven peatland restoration;
- taking account of other ecosystems services delivered by peatlands in addition to carbon e.g. biodiversity gain.

24 Semi-natural grassland and inter-tidal habitats can also provide nature-based carbon abatement opportunities, but compared to woodland and peatland, the benefits and practicality of bringing these habitats to market are far more limited. See Second Phase Research for the Task Force, *Opportunities for UK Business that Protect and/or Value Nature*, pp. 44-9.

25 Ecosystem Marketplace, 2012

26 Rabinowitz, R. & d'Este-Hoare, J. (2010) *The Feasibility of Creating a Funding Mechanism for UK Carbon Reduction Projects.* http://www.ukcarbonreporting.org/filelibrary/IP17_10.pdf.

7. Environmental Bonds

The opportunity

The opportunity relates to the use of environmental bonds for funding protection and improvement of the natural environment, such as woodland creation, wetland restoration and the creation of green space in urban areas. Environmental bonds include a pledge by their issuer that capital raised will be used to fund projects with a beneficial environmental and social impact – this assurance, rather than the type of issuer or financial structure, is the defining characteristic for an environmental bond. A variety of environmental bonds have been proposed and issued over the last three years including green investment bank bonds, green infrastructure bonds, and woodland creation bonds.

A number of global and UK-specific trends suggest that the opportunity could be significant. For example, the World Bank has successfully issued around USD 1.5 billion in AAA/Aaa rated environmental bonds ('Green Bonds') through 20 transactions in 15 different currencies which has financed projects including avoided deforestation, Payment for Ecosystem Services (PES) programmes and watershed management, as well as other climate change mitigation and adaptation projects.

The Task Force recommends:

The Task Force believes there are significant opportunities for UK business in the development of a market in environmental bonds and supports further development and testing their viability in a UK context. There is an opportunity for the Government to support the development of environmental bonds as a mechanism for attracting additional private capital to protect and develop nature and recommends that ***Government:***

a) explore the potential of the Green Investment Bank (GIB) in helping to speed up the creation of a liquid market in environmental bonds*, for example by providing governmental guarantees through the Green Investment Bank to de-risk the investment in commercial forest bonds;*

b) revise the tax conditions attached to bonds that support charitable causes;

c) create a consistent and transparent framework for reporting the impact of an environmental bond back to the investor. *This would allow investors to compare the impact of bonds and make a choice in line with their objectives.*

The challenges

- Despite these positive trends, growth in the market for environmental bonds will depend on future environmental bond issues fulfilling certain key conditions relating to generating adequate financial, environmental and social returns in absolute terms; that returns are commensurate with the level of risk involved; and that they demonstrate environmental and social impact in a clear and transparent fashion
- The risk associated with an environmental bond is based directly on the underlying natural asset and its ability to generate revenue streams to support repayment. Uncertain markets associated with the natural environment (e.g. carbon or PES revenues from forest) add to the commercial risk. There are, however, certain sectors where environmental bonds could make a helpful contribution, for example fisheries.
- Further work needs to be done to understand whether they might work in practice.

Case Studies – Carbon and markets for nature

Piloting offsetting in Essex – Environment Bank Ltd (EBL) is working with the various local authorities in one of Defra's voluntary pilots with the first offset credit sales about to go live in 2013. EBL's national Environmental Markets Exchange, when fully populated with receptor sites, will facilitate the supply of offset credits to developments. EBL have been raising awareness amongst various groups on the supply side (such as land managers and conservation groups) and demand side (developers and house builders), and have worked on legal and policy documents to facilitate uptake of offsetting, but it is clear that only a mandatory approach would enable a formal and secure market to develop. www.environmentbank.com

US Wetland Mitigation Scheme is the world's most developed offset system. Following the avoidance-mitigation hierarchy, developers who drain, fill or dredge wetlands or streams can buy offsets, located in a similar landscape, to compensate for the damage. The scheme operates differently across 38 regions of the US. In 2008, the Scheme created conservation payments of $1.1 – 1.8 billion, providing 9,784 hectares of wetland in compensation for development of 7,608 hectares, representing a net increase in wetland area of 29%.

Bringing neglected woodland into an appropriate management regime is challenging, and woodland owners often lack a route to market. **The B&Q UK Forest Friendly Woodland project** is run by the charities BioRegional and The Sylva Foundation, and helps woodland owners and managers understand their woodland resource and create a Forestry Commission compliant management plan. A network of local woodland trainers will visit 200 woodlands across the South East and East of England, representing approximately 10,000 hectares of woodland and provide training to woodland owners on The Sylva Foundation's *My*Forest mapping service.
http://www.kingfisher.co.uk/index.asp?pageid=161&mediaid=773&startrow=9&category=all

The Confor Woodfuel Suppliers' Group (WSG) was established in 2011, and is affiliated to the Renewable Energy Association. It has around 40 members committed to supplying high quality, independently tested, fuel to end-users. The group is helping to build consumer confidence in the supply chain and increase the use of locally-sourced woodfuel. It is estimated that in 2011/12 WSG members supplied around 350,000 tonnes of quality-assured fuel with a market value in the region of £35 million.
http://www.confor.org.uk/AboutUs/Default.aspx?pid=331

Food, insurance and travel companies are already investing in forest carbon and the Forestry Commission's **Woodland Carbon Code** provides standards and certification. At end 2012, 89 projects, covering over 3000 hectares of woodland in the UK, (25% in England) with the potential to sequester 1.39 million tonnes of CO_2 over their lifetime were registered under the Code and these credits can be reported in company accounts as part of their net GHG emissions. EnviroMarket, a financial consultancy, working with Forestry Commission England has proposed two environmental bond structures to catalyse funding for woodland creation.
http://www.forestry.gov.uk/pdf/ENVBOND.pdf/$FILE/ENVBOND.pdf

Moorland restoration in the Peak District and South Pennines. As well as storing large amounts of carbon, the drinking water for many of the big cities of northern England comes off Bleaklow and the neighbouring Pennine hills. However, treacle-coloured water carrying small particles of peat from degraded peatlands increases treatment costs for water companies. The Moors for the Future Partnership is leading a project to restore Bleaklow to healthy wet bog. It is co-ordinated by the Peak District National Park, and cofunded by the European Commission. Partners include Environment Agency, Natural England, National Trust, United Utilities and Yorkshire Water. Source: IUCN, UK *Peatland Restoration: demonstrating success* (2012).

Food Cycle – further recommendations

The food cycle is an area where the interplay between nature and business is clear; a wide range of businesses, from farms through to manufacturers and retailers, ultimately depend on nature for the raw ingredients of the food we all eat. The Task Force believes that there are a number of opportunities to enhance this relationship and improve the interaction between business and nature in this area, for mutual benefit.

At the agricultural level, there is a partial market for ecosystem services supported by agri-environment payments, as well as wider opportunities around the production and marketing of sustainable produce and services such as recreation and tourism.

Business could benefit from tapping into consumer demand for more environmentally friendly food produce, through certification and labelling schemes. Products and services can be marked out as higher value and more desirable. Additional spend on nature-friendly actions to acquire the accreditation can be justified by the higher prices commanded if consumer awareness is raised sufficiently, and lessons from successful and unsuccessful schemes are applied.

Throughout the manufacturing, retail and consumption stages of the food cycle, there is waste. This creates costs to business through wasted resources, foregone revenues and costs of disposal. It also causes environmental damage through wasted energy use in growing crops, manufacturing packaging, and transporting goods, as well as the damage and increased emissions caused by waste going to landfill. Household food waste in the UK is currently worth an estimated annual £12bn with food waste from the rest of the supply chain worth £3-5bn.

8. Common Agricultural Policy

The opportunity

The EU's Common Agricultural Policy (CAP) is the largest source of public funding for farming and rural development in the UK. CAP spending amounted to some £3.4bn in 2011, of which £2.8bn is paid in cash directly to farmers ("Pillar 1")[27]. In the short term, these payments are important for farm incomes. In the long run, however, Pillar 1 of the CAP represents poor value for taxpayers' money, hampers restructuring and efficiency, and, despite some basic environmental conditions attached to payments, has limited direct benefit to nature[28].

"Pillar 2" of the CAP funds agri-environment and rural development schemes and offers much better value for money for nature[29]. Land managers receive payment in compensation for undertaking various nature-friendly practices but these payments do not add directly to the bottom line and are somewhat perversely based (according to world trade rules) on "income foregone" rather than positively based on value added to nature. There is, however, widespread uptake amongst farmers: 70% of England's farmland is under an agri-environment agreement.

The UK continues to receive a disproportionately low share of EU Pillar 2 funds, far below the EU average on a per hectare basis. This reflects allocations based on historic spend on rural development policies in the 1990s. More positively, EU rules are likely to allow a greater transfer than in the past of Pillar 1 funds towards Pillar 2 (for example, on current allocations a 10% transfer would deliver £280 million p.a.). Additional Pillar 2 money would enhance ecosystems and stimulate business opportunities not only in ecosystem management and restoration, but also in processing and marketing of food and forest products, rural tourism and bio-energy.

Current Commission proposals to pay 30% of Pillar 1 payments through "greening" measures aim to benefit nature but appear inefficiently rigid. They could, however, offer an opportunity to deliver some elements of agri-environment schemes under Pillar 1 and so free up funds to do develop more ambitious ecosystem-focussed agri-environment and rural development in Pillar 2.

The Task Force recommends:

Government to do more for nature and business from the CAP. Specifically:

a) ***Government should continue to press for a more equitable allocation of EU Pillar 2 funds.***

b) ***Government should maximise Pillar 2 funding*** *in the next round of the CAP in England by (i) transferring maximum funds allowable from Pillar 1 to Pillar 2, and (ii) implementing Pillar 1 "greening" measures in a way which frees up Pillar 2 funds for more ambitious schemes.*

c) ***Government should make more effective and innovative use of Pillar 2 funds*** *by testing new approaches to delivering ecosystem through: better targeting and coverage of a range of ecosystem services; closer linking with other rural development funds; innovative payment mechanisms; and, given limited funds, exploring opportunities for synergies with other potential funding streams. This experience should prepare the ground for more radical reform of the CAP in 2020.*

27 Pillar 1 support focuses on maintaining the viability of agricultural production and comprises direct income supports to farmers as well as some market intervention measures (such as minimum prices and export subsidies). Since the 1990s, support has moved away from the latter to the former. A survey of the CAP can be found in the Second Phase Research for the Task Force, *Opportunities for UK Business that Protect and/or Value Nature*, pp. 86-98

28 See for example a critique of Pillar 1 by Professor Stefan Tangermann, former OECD Director of Trade and Agriculture, Direct Payments in the CAP post 2013, briefing note for the European Parliament (January 2011). www.europarl.europa.eu/activities/committees/studies/download.do?language=en&file=34680

29 See for example, research for Defra by FERA et al, *Estimating the wildlife and landscape benefits of Environmental Stewardship* (2010) http://archive.defra.gov.uk/evidence/economics/foodfarm/reports/documents/estimatingthewildlife.pdf

The challenges

- The advanced stage of current CAP negotiations, and the fact that the UK is only one of 27 member states limit the scope for fundamental reform of the CAP in the 2014 to 2020 period, although there is likely to be some flexibility in implementation and a range of options under Pillar 2 that could be pursued.
- Around half of Pillar 2 spending in England is already made up of transfers from Pillar 1 and there is likely to be fiscal and inflationary pressure on overall Pillar 2 budgets.
- Unilateral transfer of funds from Pillar 1 to Pillar 2 in England could raise concerns about the competitiveness of English farmers. Other factors at play, however, make this issue complex (for example, the effect of changing currency values; the extent to which other countries transfer funds; the long term benefits to productivity and enterprise of reducing Pillar 1 and enhancing Pillar 2).
- The need for agri-environment payments to be based on “income foregone” sits awkwardly with the need to value nature and, along with system inertia, may constrain the extent to which innovations can be made to agri-environment schemes in England. In any case, innovations such as reverse auctions will carry their own costs which need to be carefully tested

9. Food Waste

The opportunity

Throughout the manufacturing, retail and consumption stages of the food cycle, there is waste. This creates costs to business through wasted resources, foregone revenues and costs of disposal. It also causes environmental damage through wasted energy use in growing crops, manufacturing packaging, and transporting goods, as well as the damage and increased emissions caused by waste going to landfill. Household food waste in the UK is currently worth an estimated annual £12bn with food waste from the rest of the supply chain worth £3-5bn[30]. Closing the loop by having a market for food waste for use as bioenergy is an attractive solution (Opportunity 2), although the Task Force is clear that the preferable option for food waste is to avoid as much of it as possible in the first place in order to ease pressure on land use and avoid the embedded resources and emissions. Having said this, and even with ambitious food waste reduction targets being met, there would still be a significant quantity of waste.

In this regard there are already actions under way to combat food waste which the Task Force supports, with businesses directing their food waste towards useful applications, and retailers beginning to alter date labels and advice in line with guidance issued in 2011. However, with around half of all food waste occurring at household level, the Task Force calls for greater awareness-raising amongst consumers, which research suggests may lead to business benefits through enhanced brand value and customer loyalty. For that waste which cannot be avoided, there are potential synergies with the recommendation on anaerobic digestion, so the Task Force encourages consideration of the options for household food waste to be diverted to nearby AD plants where compatible and available. There is some evidence suggesting that household collection may itself raise awareness and reduce waste amongst consumers.

The Task Force recommends:

a) ***Government should consider the appropriate infrastructure and incentives to support a national system linking household food waste with local AD facilities to allow waste to be treated close to its source.*** *As a first step, best practice in Local Authorities for household food waste collection should be explored.*

The challenges

- Reliable feedstock for AD is necessary and sometimes a challenge. Businesses helping their customers to reduce food waste may impact on reduced volumes.
- Until there is a greater number of AD plants throughout the country, the opportunity for local collection and treatment of household waste is limited, though food waste can be composted.
- WRAP trials found large variations in household food waste collection participation rates. It was also found that yields vary according to the type and frequency of collection as well as socio-economic status, consumption habits, and household size. Furthermore, collection schemes may require high levels of communications support to ensure effectiveness. Consumers' undue perception of concerns over hygiene, odours and vermin associated with storing food waste may reduce participation[31].

30 Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature, p.114

31 http://www.wrap.org.uk/sites/files/wrap/Evaluation_of_the_WRAP_FW_Collection_Trials_Update_June_2009.pdf

Case Studies – Food cycle

Conservation Grade™ is a sustainability protocol implemented by farmers in return for a contracted premium price for their crop, which has led to a significant increase in biodiversity compared to conventional farming systems. The original Conservation Grade standard was developed in 1985 and initiated as a working farmland conservation model. To comply with the Protocol, amongst other things farmers have to create a whole farm environment plan; commit 10% of the farmed area of their land to a range of managed wildlife habitats and pass an annual independent verification/audit of the protocol. See http://www.conservationgrade.co.uk/

Marine Stewardship Council is the leading scheme for certifying sustainable seafood and MSC labelled products are growing rapidly. By 2011-12 there were just under 15,000 individual product lines in a global market for certified sustainable seafood now worth over US$3.2 billion annually with around 8 per cent of all wild caught seafood certified to the MSC's standard. Credible, third party certification and labelling is providing both the mechanism to demonstrate existing good fisheries management practice and, critically, the market 'demand pull' to encourage other fisheries to improve the way they fish the oceans in order to achieve certification. See http://www.msc.org/

Co-operative's Plan Bee: Co-op's Plan Bee campaign, launched in 2009, aims to address the decline in pollinators such as bees, butterflies and moths. In 2011, the campaign was extended to address the decline of other 'at risk' pollinators such as bumblebees, solitary bees, butterflies and moths. Specific actions in Plan Bee include: increasing the number of hives on the Co-op's Farms to over 1,200, equal to around 60 million bees and a pilot 'Bee Roads' project creating five hectares of wildflower corridors to provide food-rich main routes for a variety of pollinators in Yorkshire. See http://www.co-operative.coop/Plan-Bee/Whats-our-plan/

Peterborough City Council recently awarded a five year contract to green energy company Biogen to collect a projected 6,000 tonnes of household food waste annually. The food waste will be sent to Biogen's anaerobic digestion plant near Rushden in neighbouring Northamptonshire; the biogas produced by the food waste is used in a combined heat and power engine to produce electricity which is piped to the national grid, heat which is used back in the process, and biofertiliser for crops. See http://www.biogen.co.uk/news-detail.asp?newsID=71

At its Hefei factory in China, **Unilever** is using agricultural waste as a fuel in the manufacture of laundry powder. Straw, corn stalk and even peanut shell-powered burners are cutting carbon emissions by 15 000 tonnes annually – 32% of total site emissions – while reducing fuel costs by 50%. http://unilever.com/sustainable-living/news/casestudies/reducing-environmental-impacts/asia_second_generation_biofuels_cut_carbon_emissions_in_China_India_sri-Lanka.aspx#.USoSxLrHUbM.email

Water cycle – further recommendations

Water is a critical and life-supporting resource and an essential prerequisite for all forms of economic activity. The World Economic Forum's Global Risks 2013 report highlights water security as one of the top five risks for business leaders over the next 10 years[32]. In the UK, water supplies are already under stress in some areas and the combined effects of climate change and a growing population will put increasing pressure on water quality and water resources. Business is becoming aware of the growing threats from weather extremes such as flooding and drought. Business as usual will not be an option.

An integrated view of the water cycle is now encouraging fresh thinking and new opportunities to improve the way we manage our water throughout the cycle. By thinking differently about the water cycle, environmental and business benefits can be realised at the same time. We need to ensure the right incentives are in place for sustainable use of water and the removal of any barriers to uptake of integrated water supply and demand actions. This will benefit businesses widely who all have varying impacts and dependencies on water. Businesses are increasingly recognising the commercial advantages of managing their risks and dependencies of access to high quality water supplies. New innovative catchment approaches are delivering cost effective business solutions while the UK has an opportunity to play a lead role in the development of a global market in equipment and technology used by the water sector[33].

The Task Force's work has highlighted priority opportunities under **Water cycle catchment management**. This theme also explores a range of other opportunities for business and nature under **Water supply and demand** and **new financing models for flood management**. Many of these issues cut across some of the other themes highlighted in the report.

32 http://www3.weforum.org/docs/WEF_GlobalRisks_ExecutiveSummary_2013.pdf

33 Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature

10. Water catchment management

The opportunity

Using ecosystems based measures to achieve efficient water management has enormous potential business benefits. More extensive adoption of water catchment interventions could achieve multiple benefits for the natural environment while leading to cleaner water, reductions in energy intensive end of pipe treatment costs and deliver benefits to business and domestic consumers. At the last price review (PR09) Ofwat approved £60m of catchment management schemes in 100 water company catchments[34]. Good examples of such schemes include United Utilities' 'SCaMP' and South West Water's 'Upstream Thinking'. With the emerging policy landscape shifting in focus to the catchment level as set out in the Government Water White Paper, the upcoming price review (PR14) is expected to see an increasing number of such schemes emerging. Funding under the CAP is a key influence on the uptake of this opportunity. There are opportunities for greater use of agri-environment funds for catchment management particularly if synergies with funding from water companies and other sources can be developed. The approach can provide incentives towards more sustainable farming methods and acceptance that both producing food and managing the landscape at the same time are legitimate business activities.

The Task Force recommends:

Increased incentives for water catchment management to recognise the role and value of ecosystems within the water cycle. Specifically:

a) Government should maximise funding for Pillar 2 (see Opportunity 8) and use more agri-environment money to support land owners, especially farmers, deliver measures that benefit the water ecosystem on their land with a simple, usable mechanism to secure matched funding for any project.

b) Farmers should consider more sustainable farming techniques which benefit from agri-environment support.

c) Water companies should actively work with farmers and other stakeholders to drive the adoption of sustainable catchment management; report annually in CSR report the percentage of water catchment land which is sustainably managed and the percentage which is in the process of being converted to a sustainable approach.

The challenges

- Failure to secure enough of a switch from Pillar 1 to 2 could mean that insufficient funding is available to implement the required measures to balance food production and ecosystem protection
- Catchment based approaches can take many years to deliver the full benefits, making it difficult to present a compelling business case for shorter time horizons. Potential benefits are harder to exploit due to multiple beneficiaries.

34 Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature, p. 138

11. Water trading

The opportunity

A better system for water trading – enabling wet regions to help dry regions to cope in times of shortage – would help businesses and consumers to carry on as normal in times of regional drought whilst also protecting the environment through avoiding excessive abstraction in water stressed areas.

A better system would encourage water companies to consider water resources options where there might be cheaper water in neighbouring companies' footprint. It would provide financial incentives (as opposed to current disincentives) for upstream trading between water companies and between them and other large abstractors. The expected impact would be greater implementation of local interconnection schemes. This could potentially result in a benefit of £1bn in avoided investment in new water resource development[35], and would provide opportunities for new organisations to secure new water sources and trade. Within the south east of England the need to look beyond company boundaries is beginning to be recognised in identifying the most economic and sustainable provision of water supply needs.

The Task Force recommends:

More incentives for water trading that optimise the sourcing of water in the long term on a national scale, benefiting businesses and consumers and reducing stress on the environment through excessive abstraction. Specifically:

a) ***Ofwat should replace current disincentives with long term incentives for water trading which water companies can rely upon to support investment in any new long life infrastructure assets which may be needed.***

b) ***Water companies should consider water trades across regional boundaries where beneficial and include them in their Water Resource Management Plans.***

The challenges

- To create the conditions for trading will require effective collaborative action between those already responsible for managing and regulating the water cycle such as the water companies, The Environment Agency, Drinking Water Inspectorate and Ofwat
- The uncertainty in future climate change predictions could potentially result in assets built to facilitate future trades becoming surplus to requirement/redundant.
- Further consideration of the ecological impacts and costs associated with the infrastructure that is required for water trading is necessary.
- Ofwat's draft methodology for the 2014 price review published in January 2013 appears to be a step in the right direction in suggesting incentives rather than disincentives but they appear to be short term which will not encourage the necessary investments

35 Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature, p. 139

12. Water supply pipe ownership

The opportunity

Water supply pipes are the connections from the mains water supply to households. They are currently the responsibility of the household, but transferring ownership to water companies could reduce **leakage from water supply pipes** better than under householder ownership (30% of overall leakage originates from customer pipes[36]) and at lower cost. If water companies adopted supply pipes there would be far more scope for leakage reduction and lead pipe replacement. It would allow the economic level of leakage calculations to include supply pipe replacement as a demand-side intervention; the development of supply pipe serviceability criteria; improved opportunities for innovation and operational performance and improved customer relations in the longer term.

Households would no longer have the shock of discovering their liability when a pipe burst. This would reduce the need for abstraction from the natural environment. This would also reduce the lead risk and reduce the reliance on phosphate dosing (a finite resource that is expected to increase in price).

The move to transfer properties' sewers to water company management last year provides an example of how transfer of ownership can be implemented.

The Task Force recommends:

Transfer of ownership and responsibility for water supply pipes from individual customers to water companies. Specifically:

a) Government should create the legal and regulatory conditions to enable the transfer of water supply pipe ownership from customers to water companies and to ensure that companies are funded to meet their costs provided that they are efficiently incurred.

b) Water companies should actively work with consumer groups to demonstrate the benefits of the transfer.

The challenges

- Customers may reject the idea that the transfer will be of benefit. As a result of general concerns on customer affordability for utility bills, any increase in water bills may be considered to be unwelcome and so the transfer may not be properly funded.
- While transfer of private sewers has taken place relatively smoothly, companies are aware of the significant costs and would want full transparency on costs and benefits for customers
- Transfer of responsibilities could adversely impact pipe protection service and insurance providers and result in loss of employment although the net effects would likely be neutral.

36 http://www.ciwem.org/policy-and-international/policy-position-statements/water-supply-pipes.aspx

13. Water metering

The opportunity

More extensive water metering can lead to more efficient use of water, but a new approach is needed if we are to drive take up more quickly than in the past. Being aware of how much water you are using, and paying for it on that basis, is seen by most people as one of the best ways to manage demand. In 2010 around a third of homes have water meters and most domestic customers can choose whether to have one fitted; by 2015, 50% of households are expected to have water meters. Water companies in areas of serious water stress are able to roll out programmes of universal metering. A strategy to install meters systematically has potential to reduce installation costs by up to 50% (saving £1.5 billion[37]).

People who switch to using water meters on average reduce their consumption by 10% or more. If we can reduce water demand we will mitigate stresses on ecosystems and reduce the environmental impacts associated with water supply (e.g. energy consumption in water treatment and use in the home). More extensive water metering could also underpin demand for new water efficient products and services leading to new business opportunities for the water sector.

The Task Force recommends:

Accelerate the use of water metering, to reduce water demand and encourage water efficiency. Specifically:

a) Government should allow/encourage widespread introduction of compulsory water metering to accelerate levels of meter penetration alongside an appropriate tariff structure designed to help those unable to pay (such as those in low rateable value properties and in receipt of benefits).

b) Water Companies should work with customers to explain the benefits of metering and/or the support tariffs available and to report annually in CSR reports the percentage of customers with meters.

c) Water Companies should work with manufacturers of white goods to implement consistent water efficiency ratings; work with manufacturers of other high consumption devices (e.g. jet washers, garden watering systems) to encourage innovative ways to deliver similar outcomes for customers with less water

d) Manufacturers should implement a single water efficiency rating scheme for white goods in a way similar to energy efficiency and report annually the percentage of sales against each category.

e) Manufacturers should develop and promote more efficient high consumption devices.

The challenges

- Risk of failure by all relevant stakeholders to reach consensus on the role of social tariffs and their implementation
- Customers may remain unconvinced that metering is a fairer means of charging and mobilise against proposals for compulsory metering.
- Addressing metering policy at the same time as policy on tariffs for deprived people will deal with many of the objections for accelerating the rate of meter penetration and address concerns expressed by the Walker Review to tackle a confusing mixed charging system.
- Manufacturers may be unable to agree a protocol for water efficiency ratings
- To realise the full benefits, metering needs to be part of a package with customers supported to reduce their consumption e.g. with water efficiency advice

37 http://archive.defra.gov.uk/environment/quality/water/industry/walkerreview/documents/final-report.pdf p76

14. Very long-term planning

The opportunity

We know our water resources are under pressure, but water resource availability in the future is uncertain. Every five years each of the 22 Water Companies in England and Wales sets out how it intends to provide a secure and sustainable water supply for at least the next 25 years through Water Resource Management Plans ('WRMP'). Substantial climate change is expected in 50 years but this is beyond the current WRMP time horizon and is therefore ignored. Given that some infrastructure has lead-in times of more than a decade, and lifetimes well beyond 100 years, a longer term planning horizon could be advantageous. For example, the process could potentially identify a programme of national infrastructure investment bringing economic and social as well as environment benefits. Investments in ecosystem restoration to manage water supplies might be more attractive options if appraised over a longer timescale, as large scale catchment management programmes can take long periods to implement, and may also be more likely to achieve the necessary ecosystem changes.

A longer time horizon would more realistically reflect the lifetimes of built capital assets, and the sustainability of returns from ecosystems. Integrated water resources/flooding/wastewater planning is likely to deliver more ecosystems services solutions and to enable flows necessary for environmental reasons to be maintained during drought periods.

The Task Force recommends:

A very long term (50 year) plan for the entire water cycle that enables consideration of the optimum solutions for the most efficient delivery of water supply services. Specifically:

a) Government should consider the practicalities of extending the timeframe for regional Water Resource Management Plans from 25 to 50 years and implement a mechanism to better co-ordinate these regional plans.

b) Regulators should ensure the regulatory regime embeds long term strategic infrastructure planning that addresses forecasts over a 50 year timeframe in deciding which schemes to fund in any Asset Management Plan.

The challenges

- The further out the planning horizon extends, the greater the uncertainty – the range of outcomes at 50 years could be so wide that and there could be real difficulties in selecting an appropriate solution.

15. Wastewater catchment management

The opportunity

The current approach to improving river and beach quality focuses mainly on wastewater treatment. However, ever tightening consents on discharges from wastewater treatment is only a partial solution as these are the source of only part of the problem, with agriculture and industry also having a major role to play.

A more holistic approach to the management of wastewater in catchments could lead to more efficient ways of protecting our rivers, beaches, biodiversity and natural environment, with reduced costs of wastewater treatment and a reduced load on wastewater treatment plants. Waste water treatment companies could be given strong incentives to work with other interested parties to deliver catchment solutions. CAP reform and targeting agri-environment funding to natural resource protection is an important part of the solution. Application of catchment approaches to waste water offers significant potential but is at an embryonic stage. These incentives can work in conjunction with SUDS (see next section) to take pressure off waste water systems. There may be opportunities to "close the loop", for example in use of treated wastewater final effluent as an irrigation product rather than use of potable water supplies. There are also innovative approaches for sewerage processing to incorporate the removal of nitrates and phosphates and metals, for reuse. For example, turning sewerage into premium grade phosphate based fertiliser reducing costs for waste treatment and delivering high value fertiliser.

The Task Force recommends:

Greater encouragement and incentives for more sustainable approaches to wastewater catchment management. Specifically:

a) Government should maximise funding for Pillar 2 (see Opportunity 8) to allow more agri-environment funding for wastewater catchment management and to support land owners, especially farmers, to deliver measures on their land with a simple, usable mechanism to secure matched funding for any project.

b) Government, through the Environment Agency ('EA'), already sets the overall direction through the River Basin Management Plans ('RBMPs'); government now needs to define whether responsibility for the development of the Wastewater Catchment Plans (which will implement the RBMPs) should rest with the EA, water and sewerage companies ('WASCs'), the Rivers Trusts or others; in addition, government and its agencies need to define the mechanism and responsibilities for funding and managing the Wastewater Catchment Plans and decide who is responsible for ensuring implementation.

c) Government should target funding in a way similar to the process adopted for the National Environment Programme that the EA set out for water companies. This would set out a national approach to funding, with a clear scope/remit for WASCs, along with regulators and other 'polluters'.

d) WASCs, farmers, businesses should work with the organisation deemed responsible for the Wastewater Catchment Plans to deliver them.

e) High quality demonstration projects are needed to provide the necessary learning.

f) WASCs should consider the introduction of new processes to remove nitrates, phosphates and metals for reuse where feasible and economically viable.

The challenges

- To realise the full potential of water cycle catchment management approaches is likely to require a strong clear policy framework that provides clarity and assurance for water companies, sewerage companies, farmers, industrial businesses and others who will contribute to the new solutions. Wastewater catchment management is the subject of complex policy interactions (with CAP and other land management policies). These complexities may hamper progress.

16. Sustainable Urban Drainage Systems

The opportunity

Sustainable Urban Drainage Systems (SUDS) work by seeking to replicate more natural drainage processes by allowing rainfall to soak into the ground where possible or by delaying discharges. SUDS can make a real difference to both water quality and surface water flooding and could deliver huge economic savings both to government and to business. Specific benefits of more widespread use of this approach include: a reduction in the risk of flooding and associated economic, social and environmental impact; water could be returned to the local natural environment leading to ecosystem benefits; a reduction in the load on wastewater treatment plants, reducing cost and reducing the risk of spills to the natural environment. With many SUDS solutions being of a natural form e.g. a pond, this introduces areas of natural environment into developments so promoting better living spaces, access to nature and health and well-being benefits. It is estimated that 30% of the additional surface water flooding risk could be mitigated by SUDS (with broader interventions such as permeable roads helping water infiltrate the ground). Recent Defra evidence estimated that blanket use of SUDS (in new development and through retrofitting) might bring a saving of 2% of total sewerage network costs – worth around £3.5bn over 45 years[38].

The Task Force recommends:

Strong incentives to encourage the widespread adoption of SUDS to reduce loads on drainage systems and water pollution risks, while increasing wildlife-rich areas. Specifically:

a) ***Government should explore the potential introduction of a tax/charge on new developments on greenfield sites which send surface water to public sewers rather than adopting a SUDS solution. The appropriate charge should be reviewed.***

b) ***Government should, 3 years after the introduction of the charge in (a) and the review of its effectiveness, consider what similar steps might be appropriate for brownfield sites.***

c) ***Government should use the revenue generated in (a) and (b) to help Local Authorities to maintain SUDS systems.***

d) ***Developers should consider greater use of SUDS in response to the incentives in (a) above and report annually in their CSR reports the percentage of new developments on greenfield sites which adopt a SUDS solution.***

The challenges

- Overall evidence suggests that SUDS are cheaper to build than traditional approaches but to be effective requires maintenance to be put in place. Currently the costs of maintaining SUDS can be a disincentive to developers. In comparison the maintenance of conventional drainage systems is automatically taken on by water companies and financed through water bills. Therefore could be seen as a burden on developers and present a risk to house building targets
- SUDS are the subject of complex policy interactions which may hamper progress. To progress these opportunities will require collaborative action between those already responsible for regulating and managing the water cycle such as water companies and the Environment Agency and others such as planning authorities.
- Concerns from companies and local authorities on timescales for development of standards for SUDS which are necessary to provide clarity for new build particularly who would be responsible for maintenance.

38 http://www.defra.gov.uk/consult/files/suds-consult-annexf-ia-annex1-111220.pdf

17. Soft flood defences

The opportunity

'Soft' flood solutions involve working with natural processes, and are offering new sustainable ways of managing flood risk alongside traditional flood defences. It involves working at the catchment-scale and concerns the alteration, restoration or use of landscape features, and in many cases it achieves outcomes at lower cost than conventional hard engineering solutions. It can reduce compensation paid by insurers and is more affordable for businesses at risk.

Re-introduction and creation of flood storage could have significant benefits in meeting biodiversity conservation targets. Natural flood solutions can increase resilience – communities could benefit from lower flood risk, both by avoiding the distress of actual floods and through more natural open spaces for communities to use. Aspects such as river restoration stimulate community involvement, civic pride, active recreation and formal and informal learning.

The Task Force recommends:

Greater focus on soft flood defence options within catchments in the UK's response to increasing flood risk. Specifically:

a) ***Government should maximise funding for Pillar 2 (see Opportunity 8) to allow more agri-environment funding to invest in creation of soft flood defences.***

b) ***Government should already sets the strategic direction for managing flooding risk; government now needs to ensure that river catchments are managed holistically, from headwaters to estuary, by creating a robust planning framework and flood protection plan to manage all interventions and to assign ownership; and to define whether responsibility for the development of this plan should rest with the EA, local authorities or water and sewerage companies; in addition, government and its agencies need to define the mechanism and responsibilities for funding and managing these interventions and decide who is responsible for ensuring implementation.***

c) ***Government should give development control more authority so that where a developer proposes to build in areas susceptible to flooding, mitigation measures must form part of the development; in addition a tax/charge should be levied on developers to pay for mitigation measures up/down stream. The appropriate charge should be reviewed.***

The challenges

- If not enough of a switch from Pillar 1 to 2 was secured then there may be insufficient funding available to implement the required measures.
- At a time of austerity and with desires to reduce the burden on developers and cut regulation, there may be opposition to proposals.
- Flood mitigation is the subject of complex policy interactions (with urban planning and roads maintenance, and with the Common Agricultural and other land management policies, respectively). These complex opportunities are also inputs into the even more complex role of ecosystems in flooding, which also involves insurance, flood defence management, and developing resilience to climate change. These complexities need not necessarily hamper progress, however, especially if appropriate multi-sector processes can be identified and adopted.

18. Privatisation of flood defences

The opportunity

New financing models for flood risk management offer an opportunity to increase investment in flood risk management, to underpin the economic viability of individual flood schemes and also to enable synergies between flood risk management, water management and wastewater management to be exploited. Greater exploration of the mix of financing mechanisms across private and public sector institutions (e.g. taxation, utility charges, insurance premiums, regulation) and funding delivery models for flood defences will be required to meet future pressures from climate change and increasing development[39].

Alternative funding arrangements including public-private partnerships potentially provide Government with additional investment which could contribute to reducing the deficit and remove significant future expenditure from the public sector. There may be opportunities to drive greater efficiencies and provide greater transparency of flood defence costs. It may also overcome the current institutional arrangements for the management of urban drainage that are particularly fragmented leading to less efficient delivery of flood defence solutions. New funding mechanisms for flood defences could lead to expansion of, and/or innovative approaches to, the engineering and natural solutions market.

The Task Force recommends:

Flood defences be privatised though an open tender process, supported by an appropriate revenue model. Specifically:

a) ***Government should create the legal and regulatory conditions to enable the transfer of the responsibility for the investment, planning, construction, management and maintenance for soft and hard flood defences from the public sector to the private sector (including WASCs and new private sector companies which may be established to bid), community organisations, social entrepreneurs and non-government organisations, through an open tender process to ensure that the government gets fair arms-length prices.*** *Government would need to carefully define the responsibilities, ownership, liabilities and funding mechanism (water bills, insurance, rates or a combination).*

b) ***WASCs, other private sector companies, community organisations, social entrepreneurs and non-government organisations should develop partnerships where appropriate to tender for and then manage soft and hard flood defences more cost effectively than under government ownership.***

The challenges

- Flood mitigation is the subject of complex policy interactions (with urban planning and roads maintenance, and with the Common Agricultural and other land management policies). These complex opportunities are also inputs into the even more complex role of ecosystems in flooding, which also involves insurance, flood defence management, and developing resilience to climate change. These complexities may hamper progress.
- The transfer of responsibilities from the public to the private sector may be deemed politically unappealing amid concerns that privatised utilities are profiting from public services.
- The issue of appropriate liability limits for extreme events if responsibility is to transfer from the public sector to the private sector would need to be clarified.

39 See Cambridge Natural Capital Project, "Pooling Innovation: New Approaches to Water Stewardship" is a good example of exploration on new sustainable funding models for water. See: http://www.cpsl.cam.ac.uk/Business-Platforms/Natural-Capital-Leaders-Platform/Water-Stewardship.aspx

Case Studies – Water cycle

United Utilities pioneered an ecosystem approach to managing water quality with its Sustainable Catchment Management Programme (SCaMP) over 10 years ago. SCaMP has demonstrated how such an approach can leverage funding from a variety of sources to implement measures that benefit the rural environment, economy and society. The first phase of SCaMP, between 2005 and 2010, covered 27,000 hectares of land. In a partnership between United Utilities (UU) and RSPB, the prime focus was to improve the condition of Sites of Special Scientific Interest and water quality through activities such as restoring blanket bogs and areas of eroded and exposed peat, restoring heather moorland and establishing new woodlands. Costs were split between UU funds (£10.7m) and support through external grants including agri-environment (£2.6m). The arrangement has benefited farmers, UU, water customers, wildlife and habitats. SCaMP2, running from 2010-2015 covers the remaining 29,000 hectares of catchment land which UU owns. UU funds (£11.6m) are again supported with various external grants (£1.3m). UU is also investing in catchment land owned by others in partnership with others. At Kinder, it is investing £875k in partnership with Natural England/National Trust (£875K) and at Woodhead, UU is investing £0.7m in partnership with Moors for the Future drawing down £2.6m of EU LIFE+ / agri-environment funding.
http://corporate.unitedutilities.com/scamp-index.aspx

Sustainable drainage solutions in the Olympic Park have been integrated as part of restoration of the Park's waterways, providing benefits to water quality, flood-risk management, navigation, biodiversity and recreation. Restoration has enhanced peak flood capacity, allowing the waterways and wetlands to perform in a more dynamic and natural manner, whilst wetland bowls and wet woodlands help to manage floodwater. This would protect the rest of the Park and 4,000 nearby homes from a one-in-a-hundred-year storm. A series of swales and frog ponds designed into the north Park landscape allow a more sustainable drainage system to manage rainfall and support biodiversity.
http://learninglegacy.independent.gov.uk/themes/design-and-engineering-innovation/micro-reports.php

Sustainable Urban Drainage Systems: Manor Park housing estate: In the heart of this Sheffield housing estate, a sustainable drainage system comprising a series of ponds and lagoons helped to protect 300 homes from flooding in 2007. It cost £750,000 less than a traditional drainage system. When not in use as water storage, the infiltration basin provides a valued community space, which is used for hosting local events. Source: Wildlife Trusts.

Rather than more traditional concrete solutions for flood protection, **Shell at Stanlow** has invested in a wetland, upstream of their installation, managed by Cheshire Wildlife Trust. Along with other partners, this has paid for rewetting the land to protect their site from flooding.
http://www.merseybasin.org.uk/archive/assets/66/original/Otters_Orchids_and_Oil.pdf

Constructed wetlands to treat waste water: there are more than 1,000 examples of such systems in the UK which are water management systems modelled on wetlands and used for wastewater treatment. These custom built systems help to optimise recovery and reuse water, nutrients and energy, restore soil ecology and create habitat for wildlife.

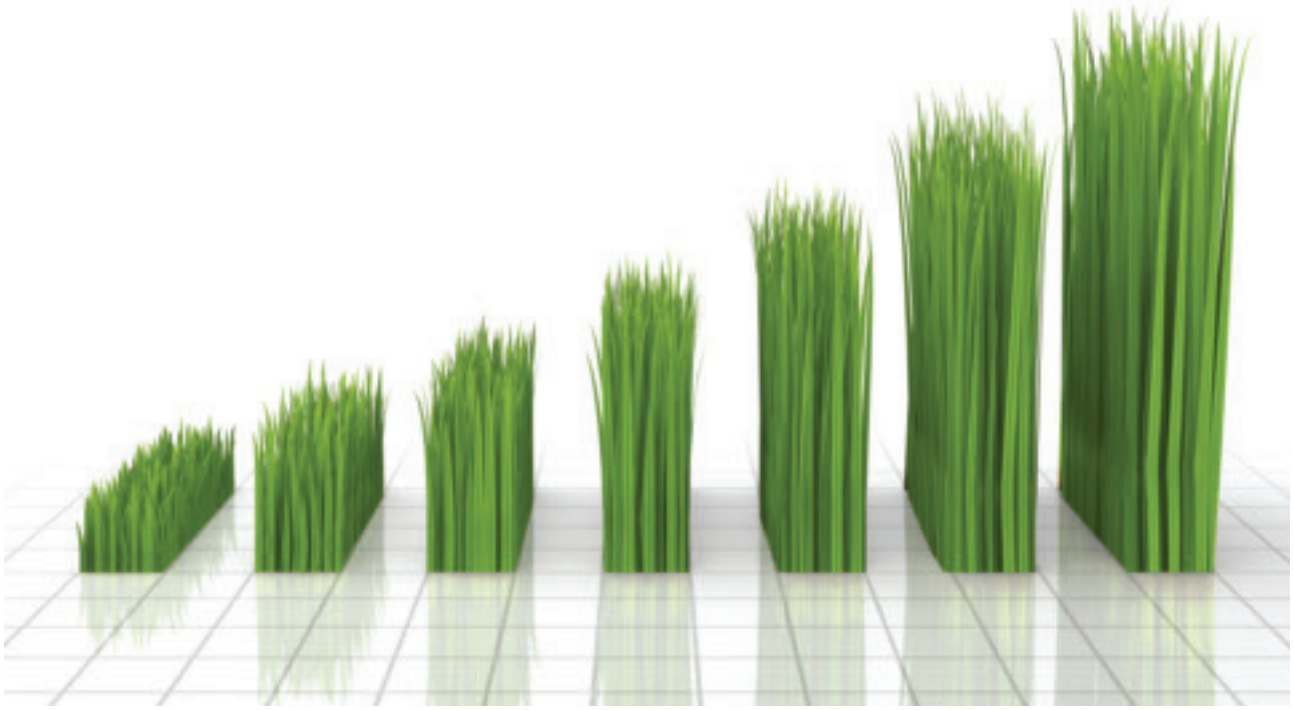
Natural capital: cross-cutting themes

All successful businesses look at risk and resilience, but many do not consider the risks to their business if the quality and/or availability of nature's services are affected.

A business that puts a value on the services it draws from nature will be able to make more informed investment decisions which mitigate risk and improve resilience. It can also begin to identify opportunities to develop "Circular Economy" business models, in which scarce natural resources are restored and re-used and material waste is "designed out".

Various initiatives, standards and metrics are being devised in order to end 'the economic invisibility of nature' within corporate consciousness and decision-making, to raise awareness of environmental risks within and without the organisation, to improve engagement with investors and other stakeholders, and to benchmark against other companies and sectors. In short, as *TEEB for Business* says, "Businesses that fail to assess their impacts and dependence on biodiversity and ecosystem services carry undefined risks and may neglect profitable opportunities".

Many of these issues cut across the other themes highlighted in this report, including the need for better metrics to value nature, and the opportunities to grow and build on our knowledge economy.



19. Managing natural resource security

The opportunity

There is already broad recognition across industry and government of risks of unexpected interruptions to supply of finite metals and minerals and the sustained price shocks which can ensue. An EEF survey in 2012 found that 80% of senior manufacturing executives considered limited access to raw materials to be a business risk[40]. This thinking needs to be extended to cover ecosystems. A broader nature-based perspective on renewable critical materials could help identify new opportunities for a range of UK businesses.

Managing scarce and vulnerable fish stocks is a challenge for many food companies, but it is by no means the only case. Water use in supply chains is often overlooked. Allowing high value non-renewable and non-substitutable resources such as phosphorous – a key limiting factor on crop yield – to escape the economic cycle is wasteful and polluting, as it increases pressure on both primary extraction and disposal activities. It is also risky, seeing that phosphate rock prices soared by 800% from 2006-8. More careful nature-based management of phosphorus could be achieved through allowing sewage sludge to be applied to organic farmland (subject to meeting contaminant limits). Accessing scarce materials in areas that are rich in biodiversity and ecosystem services (e.g. hydrocarbons in Ecuadorian Amazon, Alaskan tundra) can have significant negative consequences.

Better awareness and management of natural resource security can benefit business through cost savings, security of supplies and the ability to react to changes in the market situation for particular resources. Innovative approaches and new solutions to secure raw materials also present new commercial opportunities such as 'whole lifetime' control approaches over material resources; new ways of designing processes and products to reduce resource use; development of new raw material sources; vertical integration in supply chains; and new certification and labelling opportunities (Opportunity 4).

The Task Force recommends:

a) ***Business should explore and seize opportunities to recover natural resources*** *more effectively in their design, manufacturing and marketing of products. Proactive management of upstream risks to ecosystems can secure supplies, save costs, enhance reputation and open up new market opportunities.*

b) ***Government should recognise that sustainably managing renewable ecosystem-based resources (such as water and phosphorous) is as important to the UK's resource-security risks as non-renewable resource scarcity.*** *Existing Government processes to manage materials scarcity issues should be expanded to give greater coverage to ecosystem risks.*

The challenges

- The issues involved in ecosystems-based renewable materials scarcity are diverse and raise different issues from non-renewable, mineral-based resource risks
- Ecosystem services risks may not be efficiently addressed by markets due to market failures linked to free-riding and short commercial investment time horizons.

40 http://www.eef.org.uk/releases/uk/2011/GOVT-MUST-TAKE-STRONGER-ACTION-OVER-LOOMING-RAW-MATERIAL-SHORTAGE.htm

20. Using nature to enhance resilience

The opportunity

Business is becoming aware of the growing threats that nature poses through weather extremes such as flooding and drought. More frequent flooding and coastal erosion is leading to substantial losses to the insurance industry and to agriculture and other businesses. Power generation can suffer from drought or coastal surges, whilst the fixed assets of heavy manufacturing can be vulnerable to flooding. Infrastructure such as roads and utilities are becoming more vulnerable to natural events whilst construction is needing to factor in present and future climate change. Government needs to take an overview of these risks and plan accordingly.

But nature can also be part of the solution to increasing resilience, for instance the opportunities for soft flood management and sustainable urban drainage highlighted in the Water Cycle Theme, both of which can be potentially more cost-effective and better for nature and people than traditional concrete-based solutions.

Development of business resilience to ecosystem risks could lead to new markets within the knowledge economy. Potential markets include business services in identification and education on strategic risk, use of insurance industry expertise in assessing and valuing risks, and R&D into minimising insurance costs.

The Task Force recommends:

a) ***Government should, in its infrastructure planning, explicitly recognise the importance of managing ecosystems to improve the resilience of UK infrastructure and business to extreme events.*** *Initiatives to date (for instance following the Pitt Review on flooding) need to be extended to ensure that natural systems can play a meaningful role in resilience.*

b) ***Existing policy and analytical forums in Government that address issues of economic and business resilience and horizon-scanning should explicitly consider the role of ecosystem management in natural resource and climate risks, and in communicating risks to business.***

The challenges

- Actions to address flood risk need large scale investment and may take several years to work (e.g. as habitats are restored).
- The insurance industry is complex and pursuing opportunities could have unintended consequences. Any role for ecosystems management in flood risk insurance would need a structure of property rights established and clarity about responsibilities.

21. Business accounting for nature – mainstreaming standards and metrics

The opportunity

Various initiatives, standards and metrics relating to business impacts on ecosystems are being devised[41] in order for companies to: end 'the economic invisibility of nature' at strategic level; make better informed management decisions regarding externalities; raise awareness of environmental risks within and without the organisation; improve engagement with different stakeholder groups, including investors; and facilitate benchmarking between companies and sectors. There is an increasingly visible demand for workable metrics, as demonstrated at Rio+20, where over fifty countries and 86 private companies backed a call to factor the value of natural assets into business decision-making and countries' systems of national accounting. Amid this array of initiatives, the not-for-profit TEEB for Business Coalition, which comprises the key global players in this area, is aiming to develop a harmonised method to value material environmental externalities to enable their measurement, management, reporting and disclosure in business. This will be road-tested in various high impact sectors such as food, construction, energy, tourism and extractives in order to build the business case to incorporate natural capital impacts into business decision-making.

The Task Force recommends:

a) ***Companies – should move from a principle of "no net loss" (or net positive impact) on nature to demonstrate their progress towards this goal, using valuation methods where possible.*** *Such companies can then drive the debate on non-financial disclosure* ***metrics.***

b) ***Companies in high impact sectors should build partnerships to develop and road test valuation methods and tools****, such as those planned by the TEEB for Business Coalition. The latter should ensure that its proposed valuation tools build upon and integrate with existing reporting tools and standards in order to maximise uptake, and are robust enough for the IASB to develop them into internationally recognised standards.*

c) ***Government must maintain pace developing national accounting for natural capital*** *using suitable valuation methods in order to strengthen the wider enabling context for business accounting for nature.*

d) ***Government should review the incentive structures surrounding standards and metrics to consider if these create specific barriers for businesses taking these up.***

The challenges

- So many initiatives can confuse ordinary businesses and there is no commonly accepted approach to valuing environmental externalities. New international initiatives such as TEEB for Business Coalition to develop environmental valuation tools for business must build upon the various existing standards and tools mentioned in order to mainstream uptake. Valuation is challenging, but values need not be perfect and precise to be useful. Zero value must be wrong.
- There is a potential trade off between developing internationally accepted or dominant metrics which will take time and driving early action based on distilling messages from existing initiatives.

41 Further details of initiatives can be found in Duke et al (2013), EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature

22. Knowledge economy: UK expertise enabling business opportunities to enhance nature

The opportunity

If the UK is going to build a lasting recovery and secure sustainable economic growth then we need to understand, and fully back our knowledge economy. Improving the understanding of nature in business offers a new **knowledge economy** opportunity and one where the UK is well placed. The UK plays a leading role internationally in ecosystem related knowledge and is the first country to have a published a comprehensive national ecosystem assessment[42]. The UK has a competitive advantage in many areas of the knowledge economy related to protecting and valuing nature and taking forward the opportunities identified in this report will help consolidate and expand this competitive advantage providing high quality employment and growth opportunities.

The ecosystem knowledge economy will be a key enabler to be able to realise fully all of the opportunities for business and nature. This will lead to new and growing markets for knowledge providers, consultancy, technical and market support services including legal and financial services. For example, increased demand from businesses on guidance for reflecting ecosystem dependencies and impacts through metrics, and demand for business services in identification and education on strategic risk. This knowledge base has application across many geographical areas and could become an important export.

The Task Force recommends:

To realise fully the opportunities for both business and nature, there is a need to further strengthen collaboration between business and knowledge based institutions, positioning the UK as an international leader in knowledge based goods and services contributing to protection of ecosystems and their sustainable use. Government and relevant business, research and public bodies will need to:

a) Further develop the UK ecosystems knowledge base, continuing to support our international research reputation especially through NERC and our world leading academic institutions.

b) Recognise that more should be done to support the UK business opportunities from these world class research programmes including through support for knowledge networks and arrangements for business collaboration.

c) Examine and develop knowledge required to underpin other ecosystem market opportunities and setting out an action plan for knowledge based ecosystem opportunities.

The challenges

- To move this opportunity beyond a concept and to deliver real benefits, it is likely that a broad agenda for action will be needed, involving partnerships between government, the research and education sectors and business.
- While this is a wide ranging initiative with huge potential, achieving major change that achieves substantive business opportunities (beyond a branding initiative) would be a challenge.

42 UK National Ecosystem Assessment: http://uknea.unep-wcmc.org/

Case Studies – Natural capital: cross cutting themes

Dutch flooring manufacturer Desso is moving towards a "cradle to cradle" approach where they take back old carpet tiles and separate materials to be re-used in the manufacturing process. Currently some reclaimed materials have to be sent to other uses, but the company is exploring new materials such that the entire carpet tile can be taken back at the end of its life and be deconstructed into raw materials. They consider themselves becoming a service industry where their customers lease, rather than own the product, so the materials remain the responsibility of Desso and it is in their interest not to see them wasted. The approach has given Desso competitive edge in light of changing government procurement policies in Holland and Belgium, as well as increasing the CSR and sustainability interests of business customers. http://www.ellenmacarthurfoundation.org/business/articles/desso-10-years-to-close-the-loop)

Jaguar Land Rover is developing a new metal alloy and a closed loop recycling process which increases the use of recycled aluminium. The new alloy tolerates higher levels of impurities from previously disregarded aluminium scrap castings, reducing the amount of aluminium sent to landfill. Developing this process also reduces transport emissions because it uses materials recycled in the UK, instead of importing castings from a German supplier.

Unilever Tea Kenya has reviewed the way it produces and uses its renewable wood fuel, as the growing demand for tea threatens to outstrip supply from its eucalyptus tree plantations that supply the fuel. In partnership with local experts, UTK has made changes to planting density, growing time, harvest time, coppicing and replanting to increase eucalyptus plantation yields by 15%. New storage techniques to reduce moisture content improve boiler efficiency by about 20%, and new efficient boilers reduce wood consumption by about 25%.

In Sheffield, the **Green Roof Centre** promotes the benefits of incorporating green roofs into new and existing buildings. This includes storage and evaporation of up to 80% of an average summer's rainfall, as well as reducing pollution. The roofs can provide vital habitats for many rare invertebrate species as well as ground nesting birds such as skylarks.

Puma's Environmental Profit & Loss Account (E P&L) is a means of placing a monetary value on the environmental impacts along the entire supply chain of a given business. It enables business leaders to manage risk through being aware of their true environmental footprint while also uncovering opportunities to optimize management decisions through a greater understanding of the nature and distribution of these impacts. In 2011, PUMA delivered the first-ever E P&L. Building on this path breaking work from Puma, a recent initiative is the E P&L Consortium which represents an important effort to leverage the combined influence of ten major, global companies across different sectors, working together to define a new standard of measuring and accounting for business' impact on the planet.

HW Fisher & Co – Top 25 UK Accountancy Firm 2012 winner, Finance for the future awards: HW Fisher & Company has developed both innovative and bespoke sustainability strategies after recognising the crucial role that accountants have to play in the sustainability field. The company takes an integrated approach to demonstrating the business case for environmental initiatives to its clients by looking, not just at direct cost savings, but opportunities for second order effects. http://www.financeforthefuture.co.uk/Upload/PageAttachments/page1769/files/HW%20Fisher%20case%20study%20final.pdf

Next Steps

1) Government Response

The Task Force looks forward to receiving the Government's official response to its report, later this year.

2) Getting nature onto business agendas

The Task Force will lead an awareness-raising exercise upon publication of this report, working with a range of bodies including CBI, BITC, the Green Economy Council, TEEB for Business Coalition and the Natural Capital Committee, to get nature firmly onto businesses agendas.

3) One year on review

The Task Force would like to reconvene in one year's time for a discussion with Government and other business leaders to assess progress since the Task Force's report, and possible next steps.

Task Force members, from left to right: Amanda Sourry, Mike Wright, Martin Roberts, Peter Young, Jack Frost, Vivienne Cox, Kim Buckland, Ian Cheshire, David Hill, Russ Houlden.

Evidence Base

Task Force publications

- July 2012 – Update on work to date.
- November 2012 – Task Force Interim Report.

Task Force evidence work

Phase 1 evidence work:

- April 2012 Workshop on opportunities for UK business that value and/or protect nature's services.
- May 2012 – Paper for the Ecosystem Markets Task Force – "Top 10 opportunities", Professor Ian Bateman, Head of Economics for the UK National Ecosystem Assessment.
- June 2012 – Duke, G., Dickie, I., Juniper, T., ten Kate, K., Pieterse, M., Rafiq, M., Rayment, M., Smith, S. and Voulvoulis, N. (2012) Opportunities for UK Business that Value and/or Protect Nature's Services; Elaboration of Proposals for Potential Business Opportunities. Attachment 1 to Final Report to the Ecosystem Markets Task Force and Valuing Nature Network. GHK, London.
- July 2012 – Response Summary of Call for Evidence – Defra.
- July 2012 – Evidence Review: Business opportunities from the natural environment – a business sector approach – Defra.

Phase 2 evidence work:

- September 2012 – Scoping study Phase 2 begins.
- November 2012 – Discussion papers published for comment.
- February 2013 – Duke, G., Conway, M., Dickie, I., Juniper, T., Quick, T., Rayment, M., Smith, S., (2013). EMTF Second Phase Research: Opportunities for UK Business that Protect and/or Value Nature. Final Report. ICF GHK, London.

For further details of all the evidence papers see:
http://www.defra.gov.uk/ecosystem-markets/work/evidence/

PB13895