

What Nature Does for NI

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The Mac, Belfast



Alex Attwood, Minister for the Environment

- The current situation with regard to ecosystem services /valuing nature appropriately in NI is 'busy, positive, partly fragmented, partly coherent'. There are opportunities for us to make it more coherent.
- Ecosystem services not fully recognised or understood in politics in NI.
- Some positive aspects - for example, marine related, carrier bag levy, waste management (and yet a severe waste management crime in the NW discovered in recent days), greater understanding of heritage-led development (for example, Guild Hall, Derry).
- But also fragmentation – for example, tension around clauses in the Planning Bill, tension between the renewables opportunity we have here in NI and the inadequacy of the grid.
- Solutions to these problems?
 - Be relentlessly positive.
 - Be relentless in talking about the story – raising awareness of the value of nature in NI. Shift public and popular opinion.
 - People are ahead of politics in terms of the environment – people can drive change.
 - Liberate ourselves in terms of the vision for heritage-led development – don't be scared to develop to show heritage off in the most positive way.
 - Low carbon means sustainable growth – we need to differentiate ourselves in this area in the global market.
 - CAP about to be remodelled – if it doesn't deal with wider countryside management issues, we are missing out hugely. Money for the farmer is important – but money for nature is equally important.

Jonathan Porter, Ecosystems Knowledge Network

Ecosystems Approach – Policy context and how it works.

- Why do we need it and ecosystems approach to understanding and valuing? We have a serious problem with our environment. A holistic approach is key to tackling the problems.
- Silo mentality has traditionally been prevalent – development set against nature (and vice-versa). This needs to change. The root of the words 'ecology' and 'economy' are the same.
- Ecosystems approach:
 - Involving people (recognising that we are part of the ecosystem).
 - Understanding how nature works (scientific research programmes).
 - Valuing nature's services (not just putting a price, but taking account of their intrinsic value too).
- Ecosystems services can be thought of as the flow of benefits from nature to society, with the goal of human health and wellbeing.
- Nature is important for different people in different ways – therefore a participatory approach is crucial. Involving people in issues around understanding / valuing / managing nature adds inherent value.

- Valuation informs decision-making – it doesn't replace it. Even the simple step of recognising that something has value will impact on decision-making. We should think as broadly as possible about how we can 'capture' nature's value.
- Convention on Biological Diversity (1995) adopted the approach. More recently, there has been a policy shift towards Ecosystem Services – permeating across UK government.
 - Natural Capital Committee set up.
 - Biodiversity is a policy 'hook' in England.
 - Natural England developing a tool kit for applying to different local circumstances.
 - Scotland trades on the quality of the natural environment. The environment is a policy driver. See: Scottish Land Use Strategy, Scottish Biodiversity Strategy, Natural Capital Asset Index.
 - Wales – ecosystem services is a founding principle of the new Natural Resources Wales.
- Example projects that Ecosystems Knowledge Network has been involved in:
 - Tweed Catchment Management Plan – used ecosystem services mapping to cover issues from recreation to flood management.
 - Green Infrastructure and Health at Mersey Forest (webinar explaining this on Ecosystem Knowledge Network website).
 - Mayesbrook Park, London – funding came from insurance industry.

Professor Jonathan Leake, University of Sheffield

Value where we don't expect it.

- We are consuming natural assets faster than the rate of natural replacement. Economic goals need to be re-aligned, economic models need to change – see 'Prosperity without Growth: Economics for a Finite Planet'.
- There is a conceptual problem with comparing ecosystem services to economic value / natural capital to financial capital – we can do without, for example, mobile phones, but not without ecosystem services. Natural capital is of immeasurable value to us.
- Ecosystem Services in the concrete jungle?
- More biodiversity in our gardens than in the wider landscape (partly as a result of how we have degraded the natural landscape).
- Without soil, we lose our ecosystem services. The 'brown stuff' is important – not just the 'green stuff'.
- Carbon storage in urban areas - we don't plough soil here, instead we mow our lawns. This allows carbon to accrue over time. Much greater carbon storage potential than we had assumed in urban green areas.
- Planting trees makes a difference for above-ground carbon storage capacity.
- Does planting trees make a difference to carbon storage capacity below ground? Mixed results – trees with a deep root system are better (for example, Ash – implications of Ash dieback are important for carbon storage).

- Urban food production, 'hidden food production'. Proportionately, urban soil is more productive than soil in agricultural land.
- Hedgerows – conventional agriculture has depleted natural fertility of soils. Farmers need to get more organic matter into soil to increase fertility – carbon sequestering is a win/win for improving soil productivity and the atmosphere.
- Soil erosion and loss – it takes approx. 500 years to form 2.5cm of topsoil (but 25+cm is required for growing crops). Soils have infinite value – we need to protect them.
- Potential under-use of ecosystem services:
 - Plant more trees to sequester CO₂- including fruit trees (produce food *and* sequester)
 - Plant short-rotation coppice for biomass fuel or biochar or both
 - Increase land for own-grown and community-grown fruit and vegetables
 - Increase the area of gardens used to grow trees or food or both
 - Extend the functional benefits of hedgerow soils to agricultural fields
 - Protect our soils!

Laurence Couldrick, West Country Rivers Trust

Payment for Ecosystem Services (PES)

- Tamar Catchment case study.
- Agricultural land is 70% of land use. Problems include:
 - Algal blooms
 - Fish death
 - Flooding
 - Dredging and associated costs
- Approaches to dealing with problems, tools to deliver rural spatial planning:
 - Regulation (polluter pays)
 - Win-win (provider saves)
 - Incentives (provider is paid)
 - Catchment scale spatial planning can help unite and manage shared resources
- The Tamar Catchment is currently an agricultural-dominated ecosystem – and this can't go back to being a 'natural' ecosystem (we need to produce food).
- Too many policy documents / plans in existence that don't talk to each other – an holistic approach needed.
- Tamar pilot study – a participatory stakeholder-led approach
 - What services do we get?
 - Are we getting enough?
 - What areas effect provision?
 - What can we do to increase the provision of that service?
 - Where should it be targeted?
 - How is it funded? Who is spending what, and how?
 - What are the outcomes?
 - Are there new sources of funding?

- PES in practice:
 - Use GIS to map the above.
 - Stakeholder group identified land more likely to impact on water quality.
 - Discussed which groups are impacted by water quality – water company, anglers etc.
 - Westcountry Rivers Trust has acted as an intermediary / ‘honest broker’ between the water company (‘buyer’) and farmer (‘seller’) for water catchment management.
 - Benefits for water company – money used for prevention rather than costly treatment of water.
 - Benefits for farmers – development of better management practices and infrastructure development for storage etc.
 - Westcountry Rivers Trust can then look at water quality benefits and up-take from farmers in the areas identified.
 - Increase in water quality = good business sense for water company.
 - Another example looked at drought/flooding – mapping flood plains and flood risk areas:
 - Buyer = insurance company
 - Seller = farmer
 - Intermediary = eNGO
 - Similar studies done for carbon sequestration potential of land – role of eNGO would be to identifying marketable sequestration techniques to farmers.
 - Identifying recreation value of land was more difficult – less tangible benefits. Opportunities – anglers want areas for fishing, intermediary takes money from anglers and pays to farmers to manage land accordingly in those areas.
 - *All ecosystems services can be mapped and overlaid on a GIS. Mapping can demonstrate multi-functionality of land / identifying high value land with multiple uses.*

Short talks on Northern Ireland’s Assets

Dr Alberto Longo, Queen’s University Belfast – Peatland in NI

- Peatland makes up approximately 1/3 of NI’s land area (blanket bogs, raised bogs, fens).
- Peatlands are important because of the ecosystem services they offer – carbon storage, drinking water, biodiversity. But mostly used for fuel and horticulture (consumer driven).
- We are losing Peatland – how can we protect it? Designation or agri-environmental schemes (i.e. pay farmers to protect Peatland).

Claire Vincent (NIEA) and Dr Matthew Service (AFBI) – Belfast Lough

- Putting a value of Belfast Lough assets

- TEA SMILE project (Total Ecosystem Approach, Sustainable Mariculture in Northern Irish Lough Ecosystems)
- 70% of NI's population lives in Belfast Lough Catchment.
- Aquaculture can successfully co-exist in a multi-use sea lough like Belfast Lough.
- However, there are optimum seeding/relaying levels both from an aquaculture & ecosystem viewpoint.
- Aquaculture helps to keep algal growth/blooms under control – an ecosystem service.
- Marine planning will be a key tool in future aquaculture management.

Colleen Lynch, Queen's University Belfast – Causeway Coast AONB

- Majority of land in Causeway Coast AONB is enclosed farmland.
- Farming provides £14.9 million directly to the economy and contributes 1094 jobs.
- Tourism provide 5,682 direct and 1,839 indirect jobs and in excess of £100 million to the regional economy.
- An estimated 780,000 tonnes of carbon stored in the soil.
- Need to 'undertake strategic forward planning, rather than being reactive', (Baker et al, 2013)

Dr Brian Williams, NIEA – Cultural Assets

- Economic and social value of the historic environment in NI - £532M each year. Creates and sustains 10k jobs.
- 70% is this is created in the construction sector – 30% in tourism.
- In the RoI, the opposite is true – 30% is construction, 70% is tourism.
- Opportunity for huge growth in this area, should be recognised at cross-governmental level and priorities in the PfG.

Open discussion

- How do we 'mainstream' ecosystem services in NI? In GB it is embedded in policy, but not adopted across the board. Helpful to use language that different audiences will understand – demonstrating that the economy is grounded in the environment. Eg. Effects of drought on London report.
- Overarching issue is sustainability – even wider than ecosystem services. Global food security is a huge issue – less than 50 days reserves for the planet. No global strategy for dealing with this issue. Food production is currently dependant on oil and phosphates – not a sustainable approach.
- GB progress made through local place-based projects (bottom-up and well as top-down).
- Conference is about what nature does for NI – but what is NI doing for nature? What progress is being made?
- How do we work with land-owners and farmers? They need to understand their businesses, advise on moving towards sustainability in simple ways. Eg. Managing water quality. 30-year vision needed.

- How can we get people to buy into long-term thinking? Can we demonstrate short-term wins from long-term projects? Difficult to conclusively prove positive effects over short term. However – complex scientific studies are not always needed: for example, simply showing people that cows pollute a river without a fence present, but don't pollute the river with a fence present.
- Our high levels of soil carbon in NI seems to breed complacency. There is an issue with the farming community here in terms of wanting to be exempt from carbon legislation. But soil and its carbon sequestration capacity is beyond value. Farmers need to be rewarded for keeping carbon in the soil. Paid for outcomes. We need to more clearly demonstrate benefits to farmers.
- Water charges could work as PES (payments from consumers, through NI Water, to farmers).
- We need to recognise that different land areas have different capacities for delivering different ecosystem services. It is not all about food – lots of other potential payments for ecosystem services.
- NI example of Connswater Greenway group – value to public health (physical and mental). More physical activity in area brings savings to DHSSPS.
- Communications – the message needs to spread out (wider than those attending this conference), up (government and senior business figures), down (community level). We need to work in partnership with other groups, for example, NI Water, BITC, Health Trusts.
- We need to work on the local delivery mechanisms in an NI context – involving DARD as well as DoE.
- DoE Natural Capital policy paper will be released in March of next year.

Prof Sue Christie, NIEL

Northern Ireland's Natural Capital

- Financial Capital is a well-established concept – complemented in recent years by Social and Cultural Capital. We need to realise that all other types of capital sit within the envelope of Natural Capital – which is still not being accounted for in the way it should be.
- Northern Ireland's Natural Capital is our resource of land, water, culture and biodiversity.
- If we live of the 'interest', we live sustainably, bringing wellbeing. However, if we live off the Natural Capital we are using up our resources and headed for disaster. We are no longer living off nature's interest, we are liquidating its capital.
- What are public goods? Ecosystem services that benefit everyone. The environment is not a perfect public good because it can be degraded and can operate exclusion zones.
- How do we value goods?
 - Private goods (for example, beef) are easy - £
 - Public goods (such as water) are possible
 - Public services (for example, cleaning of water) more difficult
- Ecosystem services approach tries to put a financial value on public goods and services and factor it into decision-making. Determining *how* to pay is even harder.
- Most value within an ecosystem is not economic.

- An ecosystems approach compares the public goods that we want from a given land area with the capacity of that land to deliver the goods. Potential for a Land-Use Strategy that determines capacity of land and how to best use it.
- Understanding trade-offs – is it better value for money to build a water treatment factory or to manage uplands appropriately?
- We don't know all the facts, but that is not an excuse not to act on the valuation of Northern Ireland's Natural Capital.
- We need
 - Clear data.
 - Economic valuation.
 - Clear messages.
 - Practical demonstration of valuation of services (not just land management).
 - Promotion in the appropriate language.
- Valuing supporting services in NI, for example, Cost of invasive species to NI (through not maintaining healthy and robust ecosystems) = £46.5million per year.
- Valuing regulating services in NI, for example, hundreds of thousands of pounds spent with each urban flooding event in recent years.
- Valuing cultural Service in NI, for example, revenue and visitors to Dunluce Castle in 2010 (estimated £13,894 and 10,526 respectively).
- Valuing provisioning Services in NI, for example, Agriculture: total gross output 2012 £1.7 billion (up 0.7%)
 - Field crops output value decreased 16.3% to £69million
 - Cattle increased 16.2% to £409million
 - Sheep increased 10% to £59million
 - Pig increased 10.4% to £117million
 - Eggs increased 14.8% to £65 million
 - Poultry meat increased 14.8% to £241million

Ketso workshops

The conference culminated with a Ketso workshop, which identified

- the good things that are currently going in NI with regard to the ecosystems approach (for example, NGO projects, Countryside Management Schemes, agri-environment schemes),
- barriers to progress (for example, short-termism, the drive for economic growth, a 'silo' mentality in government) .
- ways forward in adopting the approach

These categories are represented below as 'wordles'.

Ecosystems approach

What is being done in NI?



What are the barriers to progress?



What is the way forward?

