

Biodiversity and Ecosystems – Ireland’s Undervalued Economic Assets

By Cathy Maguire, Director of Research, Comhar Sustainable Development Council

Recently Comhar Sustainable Development Council (SDC) hosted a conference on the global study ‘The Economics of Ecosystems and Biodiversity (TEEB)’. This major international initiative aims to draw attention to the global economic benefits of biodiversity; to highlight the growing costs of biodiversity loss and ecosystem degradation, and to draw together expertise from the fields of science, economics and policy to enable practical actions moving forward. In the latest commentary from Comhar SDC, guest commentator Dr. Cathy Maguire – Director of Research with Comhar SDC – looks at how biodiversity and ecosystems are an undervalued economic asset for Ireland.

What do we mean when we talk about biodiversity and what has it got to do with economic policy? Biodiversity is the diversity of all life on earth and includes species, habitats and ecosystems. Ecosystems provide a variety of services to us for free and these bring many benefits to society and the economy. There are four main categories: provisioning, such as the production of food and water; regulating, which includes the control of climate and disease; supporting, for example, nutrient cycling and crop pollination; and cultural, such as spiritual and recreational benefits.

So, yes, clearly biodiversity is important, but in these difficult economic times isn’t spending money on preserving biodiversity more of a luxury than a necessity? A question that can only be answered when we understand the real value of biodiversity and the role of biodiversity and ecosystems in supporting economic and social development. Biodiversity underpins the continued provision of ecosystem services so the loss of biodiversity affects our economy, society and future development opportunities. Because these ecosystem services are free, their value is often overlooked and not taken into account in economic decisions or policymaking.

Biodiversity and ecosystems are important economic assets as well as having an intrinsic value in their own right. They are our natural capital, and at the heart of the Government’s economic renewal plan – ‘Building Ireland’s Smart Economy’ – is a recognition that economic prosperity depends on maintaining and enhancing our assets – human, social, produced, financial and natural capital¹. However, these fine words have not yet translated into action when it comes to recognising the value of biodiversity.

Relatively few things that we pay for have their wider social and environmental costs built into the price. This is changing with the introduction of a carbon levy and the alignment of vehicle taxes to carbon emissions that reflect their contribution to climate change. It took a report on the economics of climate change, the Stern Review², to put this issue right at the top of the agenda of politicians and policymakers. Stern estimated that the costs of action to address climate change would be 1 per cent of global GDP each year, but the costs of not taking action would cost at least 5 per cent of global GDP. The review also highlighted the opportunities that shifting to a low-carbon economy would bring.

The TEEB study aims to do the same thing, by building the evidence-base that clearly demonstrates the economic value of biodiversity and ecosystems, and providing tools that will enable this value to be factored into decisions in a way that hasn’t occurred before.

So when we talk about the economic value of biodiversity and ecosystems, what type of numbers are we talking about?

¹ Government of Ireland (2009), Building Ireland’s Smart Economy. A Framework to Sustainable Economic Renewal 2009-2014.

² Stern, N. (2007). The Economics of Climate Change – The Stern Review, Cambridge University Press.

It is estimated that ecosystems deliver essential services worth between \$21 trillion and up to \$72 trillion a year, comparable to World Gross National Income in 2008 of \$58 trillion³. But these huge numbers assume that we are deprived entirely of these services. From a policy point of view, it is more meaningful to see what's happening at the margin, what are the values that we are losing year by year as we shrink our stock of natural capital.

Wetlands – half of which have been drained over the past century, often for agriculture – provide annual services of almost \$7 trillion and forested wetlands treat more wastewater per unit of energy and have up to 22-fold higher cost-benefit ratios than traditional sand filtration in treatment plants. Pollination from bees and other insects provides services boosting agricultural production worth at least \$153 billion annually⁴.

Economic losses from degradation of ecosystems have also been estimated. The cumulative loss of land-based ecosystem services from 2000-2010 was estimated at \$500 billion⁵ and unsustainable fishing reduces potential fisheries output by an estimated \$50 billion / year⁶. By 2050, loss of biodiversity under a business-as-usual scenario could cost up to 7 per cent of global GDP. These numbers are in the same ballpark as those in the Stern report, yet there is a long way to go before biodiversity loss gets the same political attention as climate change and other environmental challenges.

The TEEB study clearly demonstrates the value of ecosystems and biodiversity to the economy, to society and to individuals. It underlines the urgency of action, as well as the benefits and opportunities that will arise as a result of taking such action. The study shows that the cost of sustaining biodiversity and ecosystem services is lower than the cost of allowing biodiversity and ecosystem services to decline.

What do these global figures mean for Ireland? Isn't the developing world more directly dependent on ecosystems? An estimate of the value of some ecosystem services was calculated for Ireland at €2.6 billion per annum⁷ and this is a conservative value as some important services were not included. In Scotland, research showed that ecosystems protected by Natura 2000 sites provide three times more benefits than associated costs⁸. At a European level, it has been estimated that one in every six jobs is somehow dependent on the environment⁹.

So any plans for economic recovery that don't recognise the value of nature are failing to put in place the long-term foundations for economic and social wellbeing, both here in Ireland and globally. Money talks, and without knowing the value of biodiversity, we are missing the signals and running down our natural capital. As the leader of the TEEB study Pavan Sukhdev said, "Economics is mere weaponry, its targets are ethical choices". And, so, targeting biodiversity and ecosystems will enable economic valuation to be used to demonstrate that biodiversity is an asset that delivers benefits to the economy and wider society.

Many ecosystem services are public goods; therefore public policies have an important role to play. Understanding Ireland's natural capital and the services it provides will help us make better decisions and ensure that we understand the trade-offs between biodiversity loss and short-term economic gains. The whole picture of benefits and costs needs to be appreciated and there are many 'win-wins' to be had in

³ UNEP (2010) Dead planet, living planet: Biodiversity and ecosystem restoration for sustainable development.

⁴ TEEB (2008) Interim Report (<http://www.teebweb.org>)

⁵ TEEB (2008) Interim Report (<http://www.teebweb.org>)

⁶ TEEB (2009) TEEB for policymakers.

⁷ Bullock, C., Kretch, C. & Candon, E. (2008). The Economic and Social Aspects of Biodiversity Benefits and Costs of Biodiversity in Ireland. (<http://www.npws.ie/en/media/NPWS/Publications/Biodiversity/Media,6432.en.pdf>)

⁸ Jacobs (2004) an Economic assessment of the costs and Benefits of Natura 2000 sites in Scotland. Final report. url: <http://www.scotland.gov.uk/resource/doc/47251/0014580.pdf>

⁹ GHK, Cambridge Econometrics and Institute of European Environmental Policy (2007) links between the environment, economy and jobs. A report to DG Env of the European Commission. Brussels. (http://ec.europa.eu/environment/enveco/industry_employment/pdf/ghk_study_wider_links_report.pdf).

taking action to preserve and enhance our natural capital as this will help us adapt to climate change, provide flood protection and enhance food security and water supplies.

While the focus of TEEB may be global the action needs to be local. We need to identify opportunities where public policy can respond and act. Ireland has committed to the publication of legislation on climate change and the bill intends to put in place the long-term framework that is needed to address the challenges and grasp the opportunities that transitioning to a low-carbon economy and society will bring. At global, European and national levels, we have yet to put in place or devise such a framework to address the loss of our natural capital. Ireland – as part of the EU – has committed to a new vision for biodiversity and a target “to halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as possible, and stepping up the European contribution to averting global biodiversity loss”. This is going to be extremely challenging and not least in the context of climate change. Ireland’s latest report on the implementation of the Habitats Directive showed that many of our most important habitats and species are reported to be in bad conservation status.

The TEEB study has identified a range of solutions; some of these are not new and are already used by Government albeit with different aims. The revised National Biodiversity Plan is due for publication later this year and this could put some of the actions that need to be taken in place, but not all and so we need to start thinking about this more strategically and making the link between natural capital and human wellbeing more explicit in our policy and decision-making.

We need to measure what we want to manage but – unlike economic and human capital – there are no dedicated systems for measuring, monitoring and reporting on natural capital. Our national accounting systems and indicators should reflect the value of nature and monitor how natural assets depreciate or grow in value. We need to address biodiversity losses through our regulatory framework; reform environmentally harmful subsidies, and develop ways of rewarding beneficial actions.

There are a number of upcoming opportunities such as the development of a Green Public Procurement Action Plan. This can help expand and realise the potential of purchasing power and contribute to greening markets for the benefit of biodiversity. The development of the National Climate Change Adaptation Framework also offers an opportunity to support investment in Green Infrastructure that will support and enhance our natural capital as well as supporting jobs.

Changing how we think about and value biodiversity and ecosystem services is a huge challenge; it will need creativity and vision. As for climate change, government can set the framework but it will take action at all levels of our society and economy to identify and deliver the solutions. At Comhar SDC, we hope that this is the beginning of that process and that the TEEB study will act as a catalyst to change our policy and practice. Otherwise, when the economic impacts from the loss of biodiversity and ecosystems begin to hit home, we may find ourselves mulling over the words of Benjamin Franklin: “I believe that the great part of miseries of mankind are brought upon them by false estimates they have made of the value of things”.