



Incentive Measures and Biodiversity – A Rapid Review and Guidance Development

Volume 3: Guidance to identify and address incentives which are harmful
to biodiversity

Defra

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1 Introduction

As a signatory of the Convention on Biological Diversity (CBD), the UK is committed to develop positive incentive measures that promote the conservation of biodiversity, and to take steps to identify, reform or phase out subsidies and other incentives that have harmful effects on biodiversity.

A recent CBD Decision (X/44) on Incentive Measures¹ encourages Parties to the Convention to adopt a range of policy measures and regulations designed to promote positive incentives and phase out perverse incentives, as well as to account for the value of biodiversity and ecosystem services in decision making. The UK and other Parties are invited to report to the CBD on progress and experience in this area.

GHK Consulting Ltd (GHK), in collaboration with the Institute for European Environmental Policy (IEEP), was commissioned by Defra to review current and planned policy in the UK that addresses Decision X/44 on Incentive Measures for Biodiversity of the Convention on Biological Diversity and to develop guidance and recommendations for future policy in this area.

The work involved two main elements:

1. **A rapid review of incentives for biodiversity in the UK.** Based on a document and web review and a series of interviews with staff in Defra and the devolved administrations, this task summarised and reviewed progress in the UK in relation to six key themes addressed by Decision X/44:
 - Developing positive incentive measures for biodiversity;
 - Addressing perverse incentives that impact on biodiversity;
 - Assessing the value of biodiversity and ecosystem services;
 - Taking account of the value of biodiversity and ecosystem services in decision making;
 - Promoting sustainable consumption and production ;
 - Business engagement on biodiversity;
 - Promoting understanding of incentive measures internationally.

For each theme, the review summarises key activities taking place at UK level and within the different countries of the UK (England, Northern Ireland, Scotland and Wales). It highlights progress and achievements, discusses some of the main barriers and challenges encountered and how they have been addressed, and identifies the lessons that can be learnt from experience in the UK to date.

The review was submitted by Defra to the CBD in January 2012 as the basis for the UK's input to the progress review on activities related to Decision X/44

2. **The development of guidance for the identification and reform of incentives harmful to biodiversity.** Adapting existing international guidance for the identification and reform of environmentally harmful subsidies, guidance was developed to assist the assessment and reform of incentives harmful to biodiversity. The guidance is intended to be relevant both in the UK and internationally. The application of the guidance is illustrated with reference to three UK case studies examining the CAP Single Farm Payment, water abstraction licensing and incentives for renewable energy.

This final report presents the outputs and conclusions from the assignment. It is structured in three volumes:

¹ CBD (2010) The Conference of the Parties Decision X/44: Incentive Measures

- Volume 1 summarises the overall findings from the study and presents recommendations for the future;
- Volume 2 presents the findings of a rapid review of biodiversity incentives in the UK ; and
- Volume 3 presents guidance for the identification and reform of incentives harmful to biodiversity.

This document forms Volume 3 of the final report and presents the tool that has been developed to identify Biodiversity Harmful Incentives (BHIs) and options for their reform.

This Volume is structured as follows:

- Section 3 provides an introduction to the concept of incentives that are harmful for biodiversity, and environmentally harmful subsidies more widely;
- Section 4 offers an overview of this assessment tool;
- Section 5 provides guidance on how to carry out Phase 0 of the analysis, i.e. screening of impacts on biodiversity and relevant sectors and economic activities
- Section 6 provides guidance on how to carry out step 1 of the analysis, i.e. screening of subsidies potentially harmful to biodiversity;
- Section 7 focuses on step 2, assessing the potential for subsidy reform;
- Section 8 describes step 3, assessing subsidy reform scenarios.
- Section 9 focuses on step 4, exploring opportunities for action.

The guidance is illustrated primarily through three case studies which explore the reform of incentives harmful to biodiversity in the UK. These case studies cover:

- Wind energy developments;
- The water abstraction regime; and,
- Eligibility criteria for CAP direct payments.

The case studies are presented in Section 10. In addition, case examples from other countries are presented throughout this guidance document where they help clarify and operationalise the guidance.

Section 11 highlights key conclusions and recommendations on the use of this guidance tool and, more broadly, on the reform of incentives harmful to biodiversity.

2 The aim of this guidance document

This guidance document, prepared by the Institute for European Environmental Policy (IEEP) and GHK Consulting Ltd (GHK), was commissioned by Defra to review current and planned policy in the UK that addresses Decision X/44 on Incentive Measures for Biodiversity of the Convention on Biological Diversity (CBD).

Decision X/44 in particular acknowledges that, inter alia, '(...) perverse incentives harmful for biodiversity are frequently not cost-efficient and/or not effective in meeting social objectives while in some cases use scarce public funds'. It therefore stresses the importance of identifying, eliminating, phasing out, or reforming existing harmful incentives for sectors that can potentially affect biodiversity, with a view to minimizing or avoiding their negative impacts (CBD, 2010).

In view of this recommendation, this report aims to develop and provide guidance on an assessment tool to identify existing perverse incentives that are harmful for biodiversity and to better understand how these should be eliminated, phased out or reformed.

In this guidance tool, the terms 'incentives' and 'subsidies' are used interchangeably, building on the wider literature and well recognised terminology related to environmentally harmful subsidies (EHS).

The tool and guidance are meant to be broadly applicable to a wide set of subsidies and sectors relevant to the different policy objectives, frameworks and structures in the four UK countries. The aim is to provide a framework that is broadly applicable to a wide range of subsidies and incentives, but also amenable to further developments and tailoring should it be used for more sector-specific assessments.

The approach builds on three tools developed by the Organisation for Economic Co-operation and Development (OECD) to assess EHS: the 'Checklist', the 'Quick scan' and the 'Integrated assessment'. It also builds on a recent study undertaken for DG Environment on the identification and assessment of EHS (Valsecchi et al. 2009), which provided, inter alia, a framework for the analysis of EHS streamlining the 3 OECD tools and guidance on how to identify and reform EHS.

It is clear that there are close links between BHI and EHS. For instance, identifying BHI could be considered an initial step in taking forward the wider EHS agenda, given that negative impacts on biodiversity are often a consequence of wider environmental impacts and are therefore a good indicator for identifying EHS. BHI and EHS are therefore two complementary concepts, and the agenda for their reform should, where possible, be considered in tandem.

This report also takes into account the recommendations on subsidy reform developed under the recent study 'The Economics of Ecosystems and Biodiversity' (TEEB, 2011 see Chapter 6, Lehmann et al 2011). These approaches have been simplified and tailored to address subsidies which may be harmful to biodiversity, hereafter referred to as biodiversity harmful incentives (BHI). Although the focus and examples provided in this document relate in particular to the UK experience and policy objectives, this guidance is also meant to be a useful tool for other countries that may wish to reform their national subsidies harmful to biodiversity.

3 Introduction to incentives that are harmful for biodiversity and other environmentally harmful subsidies (EHS)

The Convention on Biological Diversity (CBD), adopted in 1992 creates an obligation for Parties (under Article 11) to “as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of biodiversity”.

The Conference of the Parties to the CBD has been considering incentive measures and biodiversity for several years. The Strategic Plan for Biodiversity 2011 – 2020, prepared by the Working Group on the Review of Implementation (of the CBD), is intended to “promote effective implementation of the Convention through a strategic approach...that will inspire broad-based action by all Parties and stakeholders”. Target 3 of the Strategic Plan relates to the elimination, reform or phasing-out of subsidies harmful to biodiversity and development and application of positive incentives by 2020.

Decision X/44 on Incentive Measures addresses a range of policy measures and regulations to encourage Parties to identify and remove perverse incentives and promote positive incentive measures for the conservation and sustainable use of biodiversity. Decision X/44 aims to make a significant contribution to the CBD Strategic Plan for the period 2011-2020, of which Strategic Goal A is to address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society. In particular, Target 3 of the Plan is that:

‘By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the convention and other relevant international obligations, taking into account national socio-economic conditions.’

Although the focus of this guidance document is on incentives harmful to biodiversity, it is important to recognise that such incentives fall into the broader, well recognised category of ‘environmentally harmful subsidies’ (EHS). Across the EU there has been a long-standing commitment to removing such subsidies. The EU Sustainable Development Strategy, reviewed in 2006, called on the EU to draft a roadmap for each relevant sector for the reform and gradual elimination of EHS. More recently, the need to phase out EHS has been reiterated in the Europe 2020 Strategy and the ‘Roadmap for a resource efficient Europe’ calls for the development of an inventory of environmentally harmful subsidies (EHS) by 2012, plans and timetables for EHS reform by 2012/13 and a full phasing out of by 2020 (COM(2011) 571 final²). There have also been calls for the reform of EHS at the international level, with countries in the G-20 and APEC forums committing to phasing out fossil-fuel subsidies over the medium term.

² http://ec.europa.eu/environment/resource_efficiency/pdf/com2011_571.pdf

Box 1: The definition of subsidies and/or perverse incentives

To date, there is no universally accepted definition of a subsidy (OECD, 2006a). The definition that is most widely used in the policy context is that of the OECD (2005), which defines subsidies as:

'A result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs'

This definition allows several government support measures to be considered as subsidies. The above definition does not include implicit subsidies that result from non-internalisation of externalities or lack of full cost pricing. Pieters (1997) proposed a slightly broader definition of a subsidy that addresses this by defining subsidies as *'deviations from full costing'*, although these may sometimes be difficult to measure.

While a broad definition, including both full cost pricing for resources and internalisation, is operationally difficult, it is important to recognise that such implicit subsidies exist and can be quite significant in all sectors. For more information on the definition of environmentally harmful subsidies, their types and examples of these, see Annex 1.

Within the CBD context (CBD decision X/44) the terminology of "incentives harmful to biodiversity" is used. This avoids some confusion that arises when people use subsidies to mean different things as it allows the wider set of economic subsidy types noted above to be included.

As mentioned above, in this tool, the terms 'incentives' and 'subsidies' are used interchangeably, building on the wide literature and well recognised terminology related to environmentally harmful subsidies (EHS).

3.1 What progress has been made towards phasing out or reforming biodiversity harmful incentives and environmentally harmful subsidies more broadly?

Volume 2 of this report details current and planned policy in the UK that addresses Decision X/44, including what steps have been taken to address perverse incentives that impact on biodiversity. The review identified that the UK's work to address perverse incentives that adversely affect biodiversity includes initiatives:

- At the national level – on issues such as water pricing and energy incentives; and
- At the EU level – where the UK continues to advocate further reform of major subsidy programmes such as the Common Agricultural and Common Fisheries Policy.

For instance, the reform of the water abstraction licensing system has been identified as a major priority in England and Wales, with the government working to reform the system, while making short term changes designed to address its adverse impacts (reform of the abstraction regime is the focus of one of the case studies in this Volume, see Section 10). Moreover, the UK government has committed to a full review of how it uses advice and incentives for farmers and land managers, to create a more integrated, streamlined and efficient approach that is clearer for farmers and land managers and yields better environmental results.

At the EU level, two major subsidy programmes, the Common Agricultural Policy and Common Fisheries Policy, have both had profound impacts on biodiversity, and the UK has been active in pressing for successive reforms. The UK has played a central role in debates about reform of the CAP, and has been a pioneer of agri-environment policies, since the introduction of the Environmentally Sensitive Areas scheme in 1987. Defra has also advocated radical reform of the Common Fisheries Policy, arguing that the current policy is broken and has not delivered its key objective of an economically viable fishing industry which minimises impacts on marine ecosystems. In July 2011, the UK welcomed proposals from the European Commission as a vital first step, and promised to work with

the EU and other Member States to deliver the radical reforms that the marine environment and fishermen need and the public expects.

It is clear therefore that there has been substantial progress in the UK towards addressing BHIs in several different sectors. However, the review also finds that such reform can be a long term process, and significant barriers and challenges remain (for more details, see Volume 2 of this report).

More widely speaking, progress on the ground in terms of phasing-out EHS more generally has been slow. For instance, agricultural subsidies in OECD countries averaged US\$261 billion/year in 2006-8 while global fisheries subsidies are estimated at US\$15-35 billion/year. Energy subsidies are around US\$500 billion/year worldwide and reached US\$310 billion in the 20 largest non-OECD countries in 2007 (Lehmann et al 2011). Given the current context of severe financial instability and the need for financial reform and for curbing public expenditures in EU Member States (MS), the reform or phasing out of subsidies that are damaging for biodiversity and the wider environment, and which have in several cases lost their initial purpose/rationale, represent a key measure that can be a win-win at both an economic and environmental level.

3.2 How do subsidies and incentives lead to potentially harmful effects on biodiversity?

Subsidies can affect biodiversity in many different ways, directly and indirectly, at different geographic scales, over different time periods. Direct impacts can be from forest conversion to biofuels crops or direct road building in biodiversity rich areas. Indirect effects include climate change which then impacts on biodiversity, or indirect land use change (ILUC) related to biofuels targets and subsidies. Impacts can be immediate (e.g. land conversion, road build, oil spills), arise over time (e.g. pollution loading leading to critical ecological thresholds being passed in due course, eutrophication events), and/or spread over many years (e.g. fisheries capacity support, fossil fuel subsidies) and felt acutely only by subsequent generations. Impacts can occur locally (e.g. subsidies for road building), regionally (e.g. subsidy for hydrological power generation using dams on rivers), nationally (e.g. peatland conversion leading to loss of habitats, ecosystems or species of national importance), internationally (e.g. resource extraction impacts, or water subsidies in water stressed cross border river basins), and globally (e.g. climate change).

Overall impacts may be less clearly negative, for instance where the incentive creates both positive and negative impacts (e.g. a hydro power plant mitigating the impacts of climate change) or due to the existence of policy filters (e.g. cross compliance requirements in the case of agricultural subsidies). On the other hand, some subsidies may appear at first sight benign but may in fact have negative effects, depending on the design or how beneficiaries respond to them (e.g. subsidies for modernisation and decommissioning of fishing fleets).

The range and complexity of the impacts underlines the importance of assessing carefully the effects of new subsidies and the need for any assessment of reform options to take a sufficiently wide look at the benefits of reform.

A brief overview of potential biodiversity impacts caused by subsidies from various key economic sectors is provided below (building on TEEB, 2011). This overview draws on international evidence about the effects of subsidies on biodiversity, while also making reference to UK examples.

Agriculture

Agricultural subsidies are amongst the largest and need special attention because of the sector's critical importance for food security and rural development. Incentives to produce can lead to increased damage, typically by stimulating intensification and/or expansion. Some examples of biodiversity impacts of the Common Agriculture Policy (CAP) related subsidies in the UK are provided in Box 2 below.

The most significant environmental impacts that have been observed over time can include:

- loss of non-target species, including pollinators, due to direct and indirect effects of pesticides;
- reduced habitat diversity due to consolidation of holdings, removal of patches of non-farmed habitats and boundary features, and greater regional specialisation;
- loss of biodiversity-rich extensive farmlands (e.g. semi-natural grasslands) due to increased fertiliser use or increased grazing;
- hydrological changes to habitats as a result of drainage or irrigation (e.g. leading to wetland loss and reductions in groundwater levels from over-abstraction);
- eutrophication of freshwater and marine ecosystems from fertilizers and nutrient rich run-off;
- eutrophication of terrestrial ecosystems from deposition of airborne nutrients, particularly ammonia, from intensive livestock systems;
- soil degradation and erosion; and
- conversion of more natural ecosystems into farming areas (land use change).

Subsidy removal or reform can help reduce harmful intensification or land expansion, hence reducing pressures on biodiversity and ecosystems. It should also be taken into account, however, that in some cases subsidy removal can result in a contraction of agricultural land that can have negative biodiversity impacts in extensive farming regions where traditional practices play a key role in creating site-specific biodiversity, soil properties and landscape amenities (OECD 2003d; EEA 2004; UNEP 2004). High nature value (HNV) farmlands, for instance, include semi-natural areas and features like hedges, walls, trees and buffer zones created as an integral part of farm management. In such regions, high agro-biodiversity depends on continuing these practices. This does not imply general support for production-inducing subsidies, but recognizes that subsidy reduction or removal is not enough, in isolation, to meet the challenge of maintaining biodiversity-rich extensive farming systems, and that subsidy reform should keep positive and negative biodiversity effects into account.

Box 2: The impact on UK biodiversity of the EU Common Agricultural Policy (CAP)

In the past, production focussed elements of the CAP stimulated important structural shifts in farming, investment and technological development which led to widespread agricultural intensification in the UK, with well-documented impacts on biodiversity, including declines in farmland birds and the destruction of important habitats, such as meadows and heathland, since the 1970s. For example, in England and Wales 97% of species rich meadows were lost between the 1930s and 1980s.

A series of reforms since the 1990s to integrate environmental concerns within the CAP have been insufficient to reverse biodiversity declines. For example, less than 10 % of habitats associated with agriculture identified under Annex 1 of the Habitats Directive were in favourable condition in the UK in 2009. Statistics show that in 2010 breeding farmland bird populations in the UK were at their lowest level ever recorded at half of what they were in 1970. Although most of these declines occurred between the late seventies and the early nineties, a 9.4 per cent overall decline had been recorded from 2004 to 2009. Many remaining species-rich agricultural habitats are rare or much reduced. A high proportion of rare and vulnerable species of EU importance are associated with these semi-natural habitats, which depend on agriculture for their continued survival. Many of these habitats continue to come under pressure from ongoing concentration and specialisation of farming systems as a result of market pressures. Their continuation depends on the availability of CAP payments designed to support environmentally beneficial land management practices, such as the

agri-environment schemes currently operating in England, Wales, Scotland and Northern Ireland.

Fisheries

There is universal acceptance in relevant literature that some types of fisheries subsidies can lead to increased fishing effort and thus have negative impacts on the level of fish stocks (UNEP 2004a, von Moltke 2010). Under pure open access, standard economic analysis shows that over-exploitation of the resource can occur even without subsidies. However, it is generally agreed that introduction of some subsidies would make a bad situation worse by further increasing exploitation (OECD 2000a; WTO 2000; Munro and Sumaila 2002; UNEP 2004a). This would be true for any subsidy that:

- increases the producer price of the resource (i.e. the price for fish received by fishermen);
- reduces the operating costs per unit (i.e. per fishing vessel); or
- reduces the purchase price of vessel capital (Munro and Sumaila, 2002).

In general, capacity-enhancing subsidies should generally be seen as environmentally harmful. These include (see further UNEP 2004a):

- subsidies for fleet expansion and modernisation (grants, low-interest loans, loan guarantees) as these reduce the purchase price of vessel capital;
- payments to countries for the exploitation of fish stocks in their EEZ by foreign fishing fleets. These constitute subsidies to the relevant fishing industry if not fully recovered from the relevant companies;
- tax preferences for intermediate inputs (e.g. fuel) which reduce operating costs per vessel. Empirical studies confirm that such tax preferences encourage the purchase of vessels with larger engines that, in turn, increase fishing ranges and enable larger catches.

In the UK, potential significant biodiversity impacts have been associated in particular with subsidies for vessel construction and vessel modernisation. Biodiversity impacts are related to fish over-exploitation due to overcapacity of the fleet, and habitat destruction from bottom trawling.

It should be noted that removing subsidies will make the task of effective management easier, but in itself will not be effective in achieving conservation goals if the underlying management regime is not also fixed at the same time.

Water

The negative impact of subsidised prices for water resources is increasingly recognised at UK and EU level. Under the EU Water Framework Directive (EC 2000), the UK (as well as all the other EU Member States) is required to take into account the principle of full cost recovery in water pricing policies to promote more efficient use of resources.

Water services provision is subsidised by charging rates that do not cover operating and management costs (below-cost pricing), possibly combined with preferential treatment for some user groups (e.g. lower rates for irrigation water). In many countries, water charges have historically been very low. Below-cost pricing, together with low collection rates, can result in utilities with limited financial resources which can lead to inadequate operation and maintenance. Furthermore, below-cost pricing leads to water over-use and wastage. Associated impacts include falling water tables, reduced availability for other users/uses, additional investment needs for water provision (e.g. wells for farmers and households) and in some cases, damage to the aquifer itself (salt water intrusion, increased pollution). Reforming water subsidies is increasingly urgent in the light of expected increased water stress caused by climate change (IPCC 2008).

In the UK, water on average costs less than £1 a day³. The challenges in the UK stem largely from the structure of the pricing system. Most users pay an annual rate regardless of how much water is used; water metering is not yet systematically in place in the UK. Water charging therefore in most cases is not linked to water volume. A recent independent review found that the current charging system is neither efficient nor sustainable (see Box 3).

Box 3: A brief introduction to the water charging system in the UK

The current charging system which is based on a mix of metered and the rateable value (RV) of the property being served. Currently just over a third of households have water meters and are charged by volume. The rest pay their water bills on the rateable value (RV) of the property they live in.

The RV system is out of date and inefficient, nor does it provide customers with an incentive to save water as at the point of use the water is essentially free. Moreover, the bills of low income customers who are unmetered are rising faster than metered bills, as the sizeable cross subsidies (currently about £600m overall) in the rateable value system are eroded.

An independent review in 2009 called for the removal of the rateable water charges, which do not incentivise water efficiency, and instead recommended that the future charging system is based on metering in order to take into account the volume of water used.

In the **agriculture sector**, subsidies for irrigation have generally under-priced the use of water. As a result, the use of water for irrigation purposes tends to be quite high. Irrigation subsidies are often justified on social grounds (i.e. the need to support low income farmers). However, subsidies usually benefit all farmers indiscriminately and tend to exacerbate the waste of often limited water resources and encourage cultivation of water-intensive crops.

Water scarcity can be aggravated by the cultivation of water-intensive crops, especially where climate conditions and rainfall patterns should dictate otherwise, and the outright waste of water.

Box 4: A brief overview of the use of water for irrigation in the UK

In the UK, licences for water abstraction for irrigation are regulated under the water abstraction regime, where abstractors are charged annually for an abstraction licence, which are typically issued based on an annual licensed volume rather than the amount of water actually abstracted.

The exception to this however is spray irrigation, where abstractors have the option to enter into a two-part tariff agreement where they pay a basic charge of 50 per cent of the authorised volume and supplementary charge of 50 per cent for the volume actually abstracted.

Although irrigation is the most significant use of water in the agriculture sector, it only accounts for 1% of total abstraction. Nonetheless, this tends to be heavily concentrated in the relatively dry Anglian region in summer with potential detrimental effects on the local habitats and biodiversity.

Energy

The effects of energy subsidies on biodiversity vary depending on the type of energy source subsidised. Subsidies to fossil fuels are of particular concern. Fossil fuel subsidies lead to increased noxious and GHG emissions while extraction of some fuels creates a huge ecological footprint. They act as a disincentive to use alternative technologies or

³ Defra (2009): The Independent Review of Charging for Household Water and Sewerage Services See: <http://www.defra.gov.uk/publications/files/walker-review-final-report.pdf>

introduce efficiency measures and can thus lead to technological ‘lock-in’ (whereby we are ‘locked into’ the use of inefficient technologies given the incentives and technological and systems inter-dependencies).

Energy subsidies for producers usually come in the form of direct payments and tax breaks or as support for research and development. The reform of fuel subsidies can significantly reduce GHG emissions (from both developing and developed countries) and air pollution and therefore have indirect positive effects on biodiversity (OECD 2012).

Box 5: Fossil fuel subsidies in the UK

In the UK, the fossil fuel industry is largely subsidised through the Export Credit Guarantee Department (ECGD), who provides insurance and bank-loan guarantees to British firms exporting technologies and services overseas (for instance by providing government assistance to UK companies involved in oil drilling abroad). It has been estimated that subsidies in this form have amounted to £750 billion of support given to fossil-fuel power stations since 1996. Tax breaks are also provided to the fossil fuel industry, including, for instance, incentives for deep-water oil drilling off the coast of Scotland.

Subsidies are also used to encourage the development and use of renewable energy sources to fight global warming and achieve long-term energy security. However, these may have other negative impacts on biodiversity. For instance, hydroelectric dams can result in the loss of wildlife habitat and reduce biodiversity (McAllister 2001); the components used in solar cells are often hazardous to the environment (e.g. manufacture of solar cells requires the use of arsenic and cadmium) and have to be disposed of relatively frequently; solar thermal plants require cooling water which can have negative impacts where there water is in short supply; and wind farms and utility-scale solar power plants can have significant biodiversity impacts, especially if inappropriately located (UNEP 2005; Drewitt and Langston 2008). Subsidies to biofuels contributed to the rapid global expansion in biofuel production and use, with the aim of reducing the reliance on fossil fuels and curb GHG emissions. Recent analyses, however, revealed that large-scale biofuel expansion promoted by subsidies, targets and mandates will likely increase net GHG through direct and indirect land-use change (Gibbs 2008; Searchinger et al. 2008; Fargione et al. 2008).

However, renewable energy developments have the potential for fundamentally positive indirect impacts on biodiversity, by mitigating the impacts of climate change which have been shown to have detrimental impacts on species, habitats and entire ecosystems (TEEB 2011). Renewable energies (and energy efficiency) are two critically important aspects of meeting growing world energy demand and avoiding catastrophic climate change with associated risk of going beyond a range of critical ecological thresholds. The net biodiversity (and wider environmental) impacts therefore need to be carefully assessed and considered in decision-making on renewable energy development.

Box 6: Subsidies for renewable energy in the UK

Incentives for renewable energy development in the UK have been introduced through the form of the Renewables Obligation (RO) and various feed-in-tariffs (FITs). The RO requires British electricity suppliers to provide a proportion of their sales from renewable sources or to pay a penalty fee.

The costs of the subsidies tend to be recovered by companies increasing the price of energy bills of consumers. It was estimated for instance that in 2007, subsidies for renewables added £7 over a year to average household electricity bill. By 2008/09 this had increased to £13.50.

In 2010, Ofgem (the Office of the Gas and Electricity Market, UK) released a report which estimated that the subsidies for renewables in the UK during the 2008-09 period had totalled more than £1 billion. Since then steps have been taken to reduce the amount of subsidies provided to some renewables, specifically biomass, energy from waste and micro-generation. FITs have also been cut (e.g. for solar photovoltaic installations). Most recently, plans have been announced to cut

government subsidies to support wind power.

Transport

The transport sector is a major contributor to global greenhouse gas (GHG) emissions, local air pollution and noise emissions but still benefits from large subsidies.

Subsidies that allow fuel prices to be kept below production cost, for instance, increase vehicle use and travel, increasing transport-related emissions which have important direct and indirect impacts on ecosystems and biodiversity.

Other subsidies, such as direct grants for building road infrastructure can lead to land use change which can threaten biodiversity, for instance where encroachment destroys habitats and affects the viability of ecosystems and species populations. Road building creates physical barriers to wildlife movement and fragments previously continuous blocks of habitat into smaller areas that may be less able to support complex communities of plants and animals. Removing ecological 'corridors' may isolate members of a species genetically and geographically (Fahrig 2003; Crooks and Sanjayan 2006; Kettunen et al. 2007 for a European perspective). Because populations tend to decrease in smaller fragments of habitat, this will increasingly threaten species requiring large home ranges.

However, it should be noted that certain subsidies to some types of transport may be beneficial to the environment and, indirectly, to biodiversity (e.g. those to railways and public transport can reduce car use as well as emissions and local air pollution). It is therefore important to ascertain the real net impacts of transport subsidies when considering their reform.

4 Overview: a tool to assess subsidies harmful to biodiversity

4.1 What is the tool?

The methodology outlined in this document aims to provide a set of pragmatic/practical guidelines (a 'tool') for the analysis of subsidies that are harmful to biodiversity, and give methodological recommendations to policy makers in the UK (and beyond) on how to assess such subsidies with a view to reforming or phasing them out.

The tool outlined in this guidance document is characterised by:

- a four-phase approach, which builds on the OECD checklist (OECD, 2005) and the integrated assessment framework (OECD, 2007a), an integrated EHS tool developed by IEEP (Valsecchi et al, 2009) and the work on subsidies by the CBD Secretariat, IEEP and others within The Economics of Ecosystems and Biodiversity (TEEB, 2011);
- development of each phase into a step-by-step operational approach;
- provision of guidance within each step;
- the ability to employ the approach at different levels of detail depending on resources available.

4.2 Who is the tool for?

This document is intended to provide guidance to Defra and other UK government departments and devolved administrations interested in assessing and reforming subsidies that are damaging to biodiversity. Although this tool has been targeted and tested on UK subsidies, it is also meant to provide useful guidance to other policy makers, countries, institutions and stakeholders with an interest in the reform of subsidies harmful to biodiversity and the wider environment. The tool therefore seeks to provide a clear and accessible means to identify and assess perverse incentives, and enhance the understanding and accessibility of the reform process to policy makers.

It should be noted that the involvement of supportive stakeholders in civil society (e.g. progressive elements of industry, progressive business associations, trade unions, NGOs) and across governmental ministries and departments is crucial for a successful reform process. On the latter, a 'whole-of-government' approach is recommended. Indeed, as emphasised by the OECD (2007a), single governmental ministries or departments do not necessarily have the capacity, the convening power or the access to resources to effectively achieve subsidy reform by themselves. Therefore, co-operation and horizontal analysis between government ministries or departments is required, namely those whose mandates or policies come into contact with the subsidised sector(s) in question. Beginning the reform process with the intention of taking a whole-of-government approach, and of considering policy coherence and the links between institutional actors, is advised in order for the analysis to follow a sustainable development path.

Furthermore, ideally a successful process of subsidy analysis and reform should be characterised by openness, transparency and participation by a wide range of stakeholders (OECD, 2008). In general, the stakeholder groups which should be called into the process include relevant agencies, politicians and civil servants, as well as business, trade unions, academia and non-governmental organisations (NGOs). The composition and representation of these stakeholder groups should be decided in advance.

Overall, it should be noted that the availability of financial and human resources will significantly influence the level and depth of the subsidy assessment. The three case studies presented in this guidance document for instance were developed with only limited

time and resources available, and therefore are to be considered a simple preliminary analysis. Ideally, more in depth assessment should be undertaken to fully ascertain the feasibility and implications of subsidy reform.

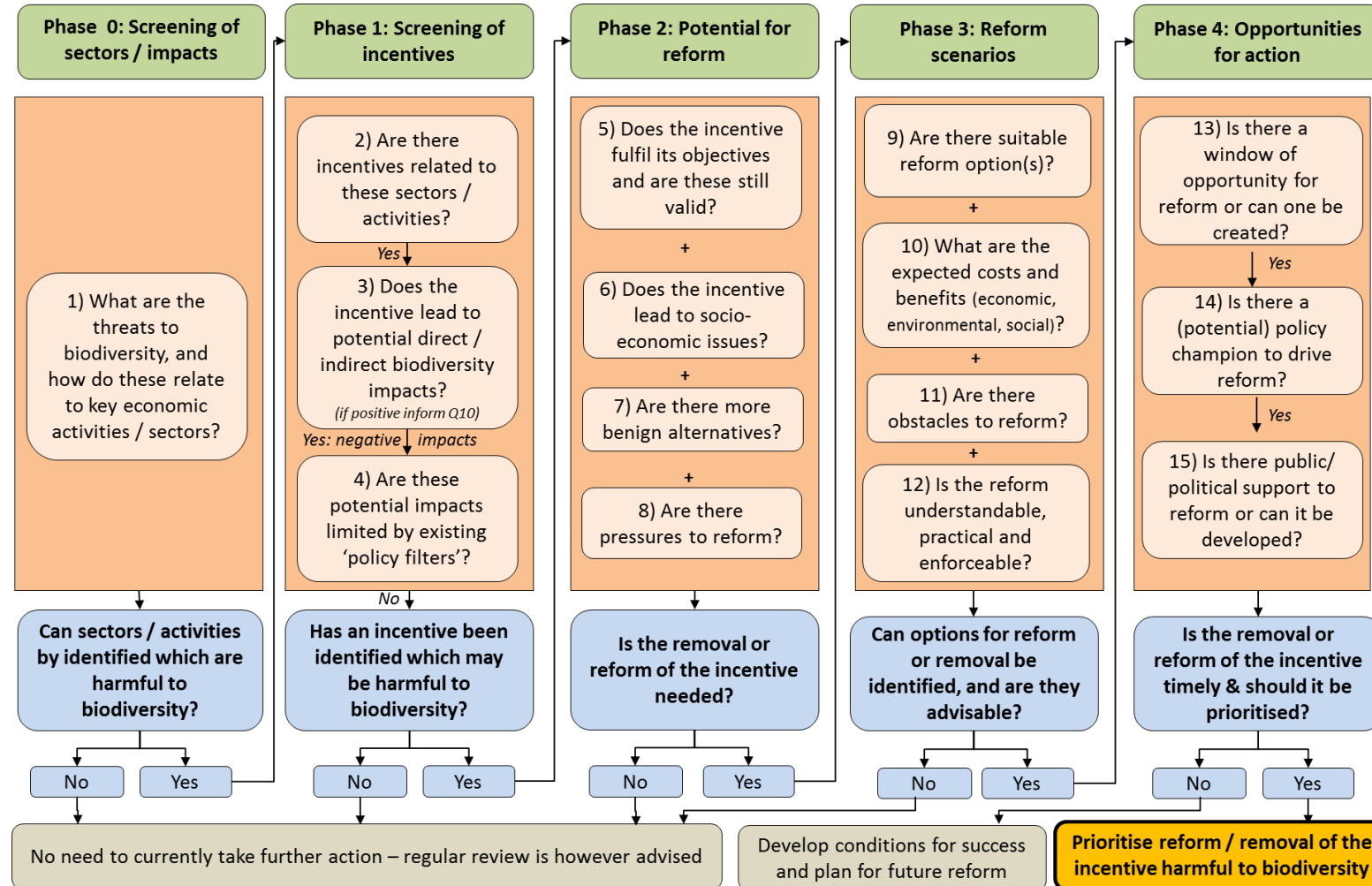
In general, it is important to know what resources are available for an initial prioritisation analysis and for a more in depth assessment and to be realistic about what can be achieved based on these.

4.3 Overview: how to use the tool?

The first step for using the tool (Phase 0), involves identifying what threats are posed to biodiversity, and how these are linked to key economic activities and sectors. This will then allow the analyst to identify potential subsidies or incentives within these sectors which are promoting various activities which may be causing harm. The next four phases of the 'Biodiversity Harmful Incentives Reform Tool' then aim to identify whether these subsidies need to be reformed or phased out, and what options may be available to do so:

1. **Screening of subsidies:** This screening phase serves to identify those incentives that have clear potential to harm biodiversity and are politically more viable for reform.
2. **Assessment of the need for reform:** The objective of this phase is to assess whether the subsidy reform/removal is likely to bring significant environmental benefits. If so, the assessment should be carried forward, looking at the trade-offs with social and economic impacts explored in the next phase.
3. **Analysis of reform options:** Here, concrete policy reform options for BHIs are developed. This phase should help to prepare the political decision making for the reform/removal of biodiversity harmful subsidies, and should help to identify whether reform is advisable and/or likely to be successful.
4. **Identification of opportunities for action:** The objective of this phase is to identify whether there are practical windows of opportunities, champions who could make the reform happen and due public and political support to enable progress. This would help in the timing and prioritisation of reform actions.

Flowchart: the subsidy reform tool



4.4 Using a traffic light system to operationalise the tool

A traffic light system can help visualise the overall outcome of each phase and the associated steps and questions.

For phase 0 (*Screening of sectors and impacts*), a red light means “stop and look at the issue”.

For phase 1 (*Screening of subsidies*), a red light means the incentives are causing (potential) harm to biodiversity and the policy maker should assess in detail the needs for reform.







For phase 2 (*Assessment of the need for reform*), a red light means that there is a serious issue with the incentive and that policy maker should stop and explore reform options.

For phases 3 and 4, the green traffic lights are indicators of the need and potential to move forward with reform. Hence in contrast to previous phases (0,1 &2), where the focus of the traffic lights were on the harmfulness of/issues with the subsidy, in phases 3 and 4 the focus of the traffic lights is on the reform of the incentives. To put at its most simple and intuitive: first “*stop there’s a problem that needs our attention*”, then “*there’s a green light to go for developing priority reform options and engaging reform initiatives*”.

For Phase 3 (*Analysis of reform options*) - a green light means that there are suitable reform options for incentive removal.

For phase 4 (*Identification of opportunities for (immediate) action*), a green light means that not only is there real potential for action, but that there are conditions in place to prioritise action and go ahead with reform initiative.

See the table below for summary to help clarify how the traffic lights are operationalised within the tool, reflecting the difference in the use of traffic lights in the phases 0-2 and 3-4. A more detailed guidance is also provided question by question in subsequent sections.

Phases 0,1,2		No major cause for concern; no need to further assess the incentives at this point in time
		There are some issues, worth double checking
		Is it necessary to “stop and think” and assess the incentive’s impacts on biodiversity and whether the incentive potentially merits reform or removal.
Phases 3,4		Real potential for action: prioritise and go ahead with reform initiative
		Check the best options, their merits and practical possibilities for reform; see whether existing obstacles can be overcome
		‘Wait’ – e.g. where obstacles are too large for immediate action and support currently not big enough to overcome obstacles. Here, better to actively plan and develop due opportunities for action than either do nothing or attempt a reform that is likely to fail and use up political capital for reform.

5 Phase 0: Screening of sectors and impacts

This phase aims to identify the main threats to biodiversity, and how these are linked to various sectors or economic activities to identify the areas where subsidies / incentives may be in place which are potentially harmful to biodiversity.

5.1 Introduction

This screening phase serves to identify the main threats to biodiversity in the country in question, especially in terms of key economic activities or sectors. This stage is meant as a scoping exercise to identify the areas where BHIs may be in place. The aim is to have a problem orientated approach – i.e. identifying where there are risks/problems and then assess the role of incentives.

This scoping phase is intended to be short, not time consuming, based on readily available information, and to be largely qualitative.

The individual steps to be addressed are summarised in the box below.

Summary of the step involved:

- 1) What are the threats to biodiversity, and how do these relate to key economic activities and sectors?

5.2 The step in detail

Step 1: What are the threats to biodiversity, and how do these relate to key economic activities and sectors?

The first step of the analysis is to identify whether there is harm to biodiversity (e.g. eutrophication, fragmentation, or other threats to habitats or species) or potential significant risk, and, if so, whether this can be attributed to a given sector(s) or economic activity (e.g. agriculture, energy production and distribution, transport etc.). Once the threat/pressure/damage is detected, it is possible to explore whether the sector/economic activity causing it is supported by any subsidy – see step 2 in Phase 1.

Key issues to be explored under this step are therefore:

- What are the key threats to biodiversity that we are interested to address?
- What are the economic activities/sectors causing or exacerbating them?

Various sources of evidence can be used for this assessment, such as The Economics of Ecosystems and Biodiversity (TEEB), and national assessments. For instance in the UK, the 2011 National Ecosystem Assessment (UK NEA, 2011) provides detailed analysis of the threats and pressures on different UK ecosystems.




This step should therefore draw, and be based, on existing evidence. However, any absence of evidence should not necessarily be taken as an indication that there is no impact on biodiversity. If no evidence is identified, regular review is therefore recommended of any potential impacts to capture any changes to the knowledge base. Moreover, if the analyst feels it is necessary, there may also be scope for recommending or pursuing further research if it is felt that the existing evidence may be missing potentially important (e.g. more indirect) impacts on biodiversity.

A brief overview of potential biodiversity impacts caused by subsidies from various key economic sectors is provided above in Section 3.2. This overview draws on international evidence about the effects of subsidies on biodiversity, while also making reference to UK examples, and should therefore provide a good starting point for identifying areas which pose threats to biodiversity and which may rely on subsidies / incentives which could be harmful to biodiversity.

5.3 Using a traffic light system

The table below can be used to show the overall score where the green light indicates a positive outcome (for biodiversity/subsidy suitability) and red a negative one – in other words there is a threat to biodiversity that needs attention and the analyst should explore this further and proceed to the next stage of the tool.

Only one option should be chosen (the others should be deleted as applicable).

	Select one of the three options (delete others)	
1) Is there a threat to biodiversity?		No
		Yes, although relatively small
		Yes, significant threat that needs attention

6 Phase 1: Screening of perverse incentives

This phase aims to identify those incentives that are likely to have *significant* impacts on biodiversity and that therefore need to be prioritised for reform.

6.1 Introduction

This screening phase serves to identify those perverse incentives that have clear impacts on biodiversity harm and are politically more viable for reform.

All potential BHIs have to be considered: not only the explicit and obvious perverse incentives, but also the implicit hidden subsidies (e.g. tax exemptions in the energy sector). All incentives should be assessed in relation to their potential negative environmental impact at regular intervals, in order to make sure that changing framework conditions and political objectives are part of efficient and effective governmental public spending (UBA, 2009).

It is important to bear in mind that the screening phase is intended to be short, not time consuming, based on readily available information, and to be largely qualitative.

The individual steps to be addressed are summarised in the box below.

Summary of the steps involved:

- 2) Is there an incentive / subsidy?
- 3) Does the incentive lead to potential significant negative impact on biodiversity?
- 4) Are these potential biodiversity impacts limited by existing 'policy filters'?

6.2 The steps in detail

Step 2: Is there a subsidy / perverse incentive?

In this step, the analyst will need to establish whether there is a perverse incentive. In practice, whether or not a particular policy (measure/instrument) should be considered a subsidy is not always self-evident. The definition of the counterfactual (the baseline, or the 'world-without-subsidy') is a crucial element in this respect.

The choice of the counterfactual includes a number of elements, including considerations of distributional equity and interpretations of policy principles such as the 'polluter pays' principle. It is impossible to provide 'objective' guidance on this choice. However, transparency can be postulated as a basic requirement. This means that the analyst should explicitly describe the counterfactual situation/scenario that has been used. Clearly, arguments supporting the choices may make them more convincing and increase acceptance. 'Objective' benchmarks, such as EU state aid guidelines and standard tax rates may be helpful in defining counterfactuals. Measures that have been taken to mitigate or compensate certain unwanted effects of the subsidy will probably not be part of the counterfactual. Some examples are provided in Box 7 below.

Box 7: Counterfactual: influence of policy objectives on the selection and definition of perverse incentives considered for removal

In the case of water, the issue is often how to optimally price water as a common pool reserve. Such an optimal price not only depends on the relative abundance of the common pool, but also on societal preferences with respect to preserving the reserve for future generations. This benchmark determines whether actual prices are deemed as being too low or too high and thus gives rise to what has to be defined as a 'subsidy' (the deviation from the 'optimal' price). A number of policy

measures may lead to deviations from this 'optimal price'. Ideally all of them would be analysed.

In the case of energy, the main concern seems to be increasing the efficiency of energy production and use, taking externalities into account. Since important externalities (e.g. SO_x, NO_x, CO₂ and other emissions or (nuclear) waste) are, as yet, seldom fully internalised into energy prices. Sectoral energy policies, aimed at efficient energy policies may involve sizeable government interventions in energy prices. Again, it is the deviations from the optimal price structure that constitute the 'subsidy'. Remedying these deviations will generally include policy packages that affect the relative prices of the various types of energy production and use rather than singular measures that stimulate or penalise one type of energy production or use.

Source: OECD, 2005.

Once a perverse incentive has been identified, some key characteristics of the incentive should be described. This will help clarify the design of the incentive, which is crucial to fully appreciate its impacts, scale and potential for reform. Information on the following issues should be collected:

- **What is the size of the incentive?** Where available provide quantitative figures or estimates, ideally noting not just a snap shot of current levels (e.g. in £/m³ for water, £/kWh for electricity), but also a time profile and, where affecting prices, also the scale of the subsidy relative to non-subsidised alternative(s) (e.g. 20% of cost). Alternatively provide a qualitative description of the dimensions of the subsidy. The larger the size of the incentive the larger the impact on marginal costs and revenues of the subsidised sector and hence on production and consumption patterns.
- **What is the point of impact of the incentive (its 'conditionality')?** Depending on its conditionality on different stages/factors of production or consumption, an incentive has different impact on revenues and costs, and may lead to different responses from producers and consumers, in terms of the modes of production, production or consumption levels. It is therefore important to identify the point of impact (conditionality) of the incentive: Is it a support conditional on the income and profits of the recipient sector? Is it a support conditional on the purchase of a product or the use of a production process (i.e. conditional on output)? Or is it a support conditional on the use of an input or technology (i.e. conditional on input)?
- **What is the duration of the incentive?** Incentives that have been in place for a long time are much more likely to have created a technological 'lock-in' and hinder structural change within the sector. This has an impact on economic efficiency and on the environment. Moreover, technological lock-in can reduce the effectiveness of environmental policies, which often rely on technological solutions for a better resource use. Note the starting point, key moments of reform (including formal reform milestones), and expected lifetime of the incentive; note an end date if there is one.
- **Does the subsidy provide for long term structural impacts?** Examples of incentives with long term impacts include those for capital investments with a long life-span, for example energy producing machinery, power plant (e.g. 40 year life time) and infrastructure (100 year lifetime+). These decisions can have large environmental effects, but whether they are detrimental or beneficial to the environment depends partly on the alternatives that may come to the market after the subsidy has been granted. Such incentives may lock in technologies that are not so 'clean' after all (OECD, 2005).

Box 8: Description of perverse incentives – some examples from the EU and the UK

Examples of incentives harmful to biodiversity -

There are a wide range of types of incentives potentially harmful to biodiversity. Below are a range of different economy types of subsidies and examples for sectors and countries to underline the

diversity of the incentive landscape. The case examples developed within this study are presented in more detail in the latter part of this box.

Direct and potential transfer of funds: Subsidies for vessel scrapping (All MS) and subsidies to improve forestry on peat lands (FI) and investment subsidies for waste incineration plants (PI - about € 1.1 billion (2007-2013; 66% of Poland's Cohesion Fund budget for environment))

Income or price support: Coupled supports under the CAP Single Payment Scheme (FR, PT, ES) Previous CAP up to 2003 – agriculture products price supports (all MS)

Foregone government revenues: e.g. Reduced VAT rate for agricultural inputs (DE, ES, FR, NL, SI) and Exemption from water pollution taxes/charges (NL)

Provision of infrastructure: e.g. Free access to irrigation networks (EL) and subsidies for households to drill boreholes on private property (CY)

Preferential treatment: Renewables Obligation (UK, BE)

Lack of full cost pricing: e.g. Nitrogen run off, eutrophication and dead zones (most EU Member States)

From the case studies

- *The water abstraction regime:* The current water abstraction system was put in place in the 1960s, and was designed to manage competing human demands for water rather than to protect the environment. It under-prices water in that the prices charged for abstraction do not reflect the full value of water either but rather the cost of managing the licensing system. The system therefore permits excessive levels of abstraction in some catchments. This has adverse effects on biodiversity and is considered to be unsustainable in the long run, particularly given predicted changes in climate.
- *Wind energy development:* Wind energy in the UK is subsidised mainly through the Renewables Obligation. This requires British electricity suppliers to provide a proportion of their sales from renewable sources (including wind energy) or pay a penalty fee. Small wind energy projects (specifically those with a capacity of up to 5MW) are also supported through a Feed in Tariff (FIT), which guarantees payments for electricity generated from small scale renewable electricity systems (linking a return on investment of between 5-8 per cent).
- *Eligibility criteria for CAP Direct Payments:* Under the SPS the eligible hectare has to be used predominantly for agricultural activities, even if non-agricultural activities (for example management for nature conservation) take place, and keeping the land in Good Agricultural and Environmental Condition (GAEC) is understood as an eligible agricultural activity if other agricultural activities have ceased. Particular problems in semi-natural habitats have been caused by differences in interpretation of the current definition of eligible area/parcel; there continue to be grey areas, where the potential ineligibility of certain semi-natural habitats or features has led to farmers erring on the side of caution and removing them in some instances to avoid the risk of payments being withheld or clawed back at a later date.

Step 3: Does the incentive lead to the (potential) significant negative (direct/indirect) impact on biodiversity?

This is a key step of the analysis. In order to understand whether an incentive should be phased out or reformed on environmental/biodiversity grounds, it is crucial to determine the significance of the impacts it exerts on biodiversity (and, arguably, on the wider environment), taking into account effects related to pollution and resource over-use. Under Step 1 the threat to biodiversity was assessed; this step is about assessing whether and to what extent the incentive/subsidy contributes to this threat or impact – i.e. is it influencing activity in the sector in a way that increases the threat or pressure?

The nature and extent of the biodiversity impacts should be described, on the basis of qualitative as well as, if possible, quantitative information available from the literature and/or from experts. Some examples of impacts are provided in the Box below. Issues to explore include:

- **Does the incentive have a direct impact on biodiversity?** This includes impacts on habitats and species (e.g. eutrophication, species disappearance etc.), impacts on

ecosystem services (e.g. issues related to water regulation, carbon capture, fish stock etc.).

- **Does the incentive have also other wider impacts on the environment? Do these wider impacts also have indirect impacts on biodiversity?** For example, if the incentive leads to the inefficient use of specific inputs or materials (e.g. energy, water or raw materials) or to technologies that lock-in the use of particularly harmful inputs, thereby stifling technological development, its removal is likely to provide large benefits for the environment. This should be described in some detail, in order to provide a general yet exhaustive overall view of the key impacts. [Some of the wider impacts will of course also lead to subsequent impacts on biodiversity and hence also be ‘indirect impacts’].

To complement the analysis, the following additional questions can be addressed briefly (i.e. with a simple positive/negative answer or a brief description where relevant).

- Is there a large change in biodiversity/ecosystems conditions due to the production/consumption patterns of the economic activity?
- Do the effects extend over a large area?
- Do the effects have implications at local, national, European or global level?
- Is there any trans-frontier impact?
- Are many people affected? (also relevant for the socio-economic section)
- Does it lead to significant or potentially excessive resource use, including valuable or scarce biodiversity features or resources?
- Are environmental/biodiversity standards breached?
- Are high biodiversity value sites, protected areas or features affected?
- Is there a high probability of the above effects occurring?
- Will the effect continue for a long time?
- Will the effect be permanent rather than temporary?
- Will the impact be continuous rather than intermittent?
- If it is intermittent will it be frequent rather than rare?
- Will the impact be irreversible?
- Will it be difficult to avoid, reduce, repair or compensate for the effect?

Box 9: Description of environmental/biodiversity impacts – some examples

General cases

Subsidies encouraging biofuels cultivation can have significant impacts on biodiversity and the environment in general. Most strikingly, there is a potential risk that a biofuels target could actually lead to a net increase in GHG emissions (Gallagher Review of the RTFO, 2008) rather than help reduce emissions as per its stated objectives. This is mainly due to the fact that the subsidies are given independently of the environmental performance of the biofuels supported, without due consideration for the full life cycle; most of the biofuels targets are volume rather than GHG savings based. Without careful design, biofuels subsidies can lead to them both not achieving their objectives, and to them having significant detrimental effects on biodiversity levels, ecosystem services provision and food security. (Valsecchi et al., 2009)

A more often cited example of a highly environmentally harmful subsidy is that of coal subsidies in many EU countries that led to higher levels of coal production and consumption, leading to increased GHGs emissions as well as other environmental impacts such as waste arisings, air pollution, salinated waters, with a range of direct and indirect effects on ecosystems. See more details of the subsidies (and their reforms) in Germany, Poland and the UK in IEEP et al. (2007).

From the case studies

- *Water abstraction regime:* The subsidy has a direct influence on biodiversity by influencing the condition of aquatic habitats on which flora and fauna depend. River flows are a critical factor for

the creation and maintenance of river and floodplain morphology, and associated biodiversity and ecosystem services. Artificially low flow regimes caused by over-abstraction have had a damaging impact on some fish, invertebrates, plant populations as well as river morphology.

- *Wind energy development.* Wind energy developments have the potential to negatively impact on biodiversity, and the wider environment, depending on their location and other characteristics. The construction of the turbine base, and other associated works (e.g. access tracks) can result in the loss of, or damage to, valuable habitats. Longer-distance impacts can also result if, for instance, work alters the ecological features of an area (e.g. alterations to the hydrology of an area, access roads creating barriers to species' corridors). There is also the risk of collision, displacement or disturbance in the case of altered flight paths for both birds and bats.
- *Eligibility criteria for CAP Direct Payments:* Biodiversity can be negatively affected where features or habitats are removed. In Scotland, for instance, farmers removed semi-natural vegetation on their own initiative, in anticipation of risks of penalisation.

Step 4: Are these potential biodiversity impacts limited by existing 'policy filters'?

Incentives do not operate in isolation, but are often rather provided as part of a wider sectoral policy package, aimed for example at maintaining production or employment levels, or redressing market failures. It is therefore important to consider whether there are other policies or measures in place that might mitigate (or worsen) the impact of the incentive in such policy package.

The following issues should therefore be explored:

- **Are there 'policy' filters that mitigate the environmental effects of a perverse incentive?** The existence of environmental or other policies that are in place (e.g. planning restrictions, emission standards, fixed tradable quota, regulatory standards, production limits, caps on total emissions etc.) which mitigate or remove or avoid the effects of a subsidy on the environment need to be investigated. If these policies are effective, the removal of the incentive may bring no or little benefit to biodiversity. It is therefore essential to consider an entire 'policy package' rather than an individual subsidy, and to compare it with the 'counterfactual' policy package (or baseline situation – see step 1 for discussion on the counterfactual). The mitigating policies (also known as 'policy filters') may have been introduced as complementary instruments, specifically intended to mitigate the subsidy's environmental/biodiversity impact, but this is not necessarily the case. They may either act as a constraint on the level or volume of the biodiversity harmful activity, or as a constraint on the emissions or environmental damage of that activity. In cases where impacts on biodiversity are potentially mitigated by regulation or policy filters, it is however, also necessary to ensure that these regulatory safeguards are effective and efficient in preventing any adverse impacts in practice. Any unintended consequences of these regulatory measures should also be considered. Therefore, this step should explicitly assess whether these filters are working. Regular reviews of the policy filters should also be conducted, wherever possible, to ensure they are continuing to deliver the expected results and/or safeguards such that the potential negative impacts on biodiversity continue to be avoided.
- **What other incentives / subsidies are provided to the sector/economic activity?** A subsidy to a sector is often provided in combination with other subsidies. It is important to assess how such various incentives interact. A classic case is a subsidy to reduce capacity in a potentially environmentally/biodiversity harmful industry (e.g. to fishing). In isolation, and if the subsidy is a 'one-off' action, its impacts on biodiversity may be limited and indeed positive if it reduced pressure on the fish stock. However, if and where subsidies for capacity reduction are provided as an on-going policy, they could lead to increased capital stock and hence pressure on biodiversity, or at best be a waste of money, if and where the industry factors in the subsidy when it invests, facilitating a move to a increased capacity fleet. Furthermore, when combined for example with a subsidy for new vessel construction, or 'modernization', it would lower the cost of fishing,

accelerate further the fishing capacity “upgrade”, and lead to increased fishing pressure and likely damage to biodiversity. At first sight the subsidy (removing capacity) may look attractive, but the result, especially if combined with other inter-linked incentives, may be harmful to biodiversity and wasteful as regards public finances. Furthermore, when a subsidy is analysed in its wider context, it can therefore become apparent that removing that particular subsidy would have substantial effects on the biodiversity impacts of that activity only if other subsidies were also reformed.

- **Does the taxation regime counterbalance the impacts of a subsidy?** In some cases incentives are provided as part of a policy package including taxes. Taxes can counterbalance the impact of a subsidy as they impact on the marginal costs or revenues of an activity (e.g. high excise duties on fuels could counterbalance the existence of low fuel VAT rates, or vice versa). As reported in OECD (2005), for example, the same level of fuel excise duties applied at the EU level have different impacts on haulage companies depending on the taxation regime applied in different countries.

Box 10: Possible policy filters – some examples

Fuel tax

Policy filters identified on fuel tax differentiation include: fuel-quality standards; technology requirements; and efficiency standards and emission standards for vehicles.

Reduced VAT for domestic energy

Policy filters on reduced VAT for domestic energy use include: the emission trading system (ETS); policies aimed at reducing residential energy demand; improving energy efficiency; and stimulating the use of renewable energy.

Irrigation subsidies in Spain

Policy filters on irrigation subsidies include: a Water Management Regime (Water Abstraction Plan); the subsidisation of drip irrigation technologies; provision of finance to modernization projects; and the cross-compliance policy of the CAP.

In all these examples the policy filters in place were not adequately mitigating or removing the negative effects of the subsidy on the environment.

Source: Valsecchi et al, 2009

Planning controls

Subsidies for renewable energy and other forms of development potentially harmful to biodiversity are of less concern if the planning system is sufficiently restrictive as to prevent damage to sites of biodiversity value.

In the UK for instance, planning controls are in place which identify, consider and enable the potential impacts on biodiversity arising from the development of wind farms to be addressed. The assessment process includes consideration of potential environmental impacts as a result of any proposed development and also includes provision for mitigation or compensatory measures to be imposed. An assessment is undertaken in the form of either Strategic Environmental Assessment (SEA) and / or an Environmental Impact Assessment (EIA). Both of these assessments consider the potential impacts on biodiversity. The case study on incentives for wind energy developments therefore determined that proper implementation of these planning controls should avoid damage to biodiversity and therefore, in theory, remove the need for action with respect to the subsidy itself.

Regulatory powers – Water abstraction

In the case of the water abstraction regime in the UK, Mechanisms are in place for changing abstraction licenses in order to reduce the volumes licensed for abstraction. There is also a requirement for compensation for any losses caused, and a facility for the Environment Agency to revoke and amend abstraction licences causing serious environmental damage. However, it has proved difficult for the Environment Agency to exercise their powers, indicating that the current policy filters are inefficient and inadequate to sufficiently address the environmental impacts arising from over-abstraction













Guidance documents – Eligibility criteria for CAP Direct Payments

Damage can be driven by the uncertainty surrounding whether penalties will arise if areas are claimed on and are subsequently deemed ineligible as a result of enforcement or audit, given the fact that there is often some margin of error in calculating ‘ineligible’ and ‘eligible’ areas. Detailed guidance documents on what is eligible and not eligible have been provided in all UK regions. These are updated regularly and are meant to provide a greater degree of certainty. <Insert text using TableText style>

6.3 Summary assessment

A traffic light system can help visualise the overall outcome of the three steps, and identify whether the incentive is harmful to biodiversity and the wider environment.

The table below can be used to show the overall score - generally, green indicating a positive outcome (for biodiversity/subsidy suitability) and red a negative one – in other words “there is a problem/issue and hence worth considering whether the incentive should be the focus of reform attention”. Only one option per question should be chosen (the others should be deleted as applicable).

	Select one of the three options (delete others)	
2) Is there a subsidy / perverse incentive?		No
		Yes, although relatively small
		Yes, substantial subsidy
3) Does the incentive lead to a potential significant negative impact on biodiversity?		No or very limited impact <i>(if a positive impact incorporate when considering reform options)</i>
		Some potential impacts
		Significant potential impacts
4) Do existing ‘policy filters’ avoid/mitigate its impacts?		Yes, so the overall impact is limited or very limited
		Some mitigation, but not sufficient to fully offset the subsidy impact(s)
		No or ineffective policy filters
Therefore: Is there an incentive that is harmful for biodiversity?		No
		Yes although limited effect
		Yes

The overall conclusion as to whether there is an incentive that is harmful to biodiversity will depend on the combination of factors. Note that a small subsidy (i.e. orange light under Q2) can lead to a big impact (as seen by subsidies supporting fisheries bottom trawling in the past).

7 Phase 2: Potential need for reform

This phase aims to better understand whether a perverse incentive needs reform (or removal) and how this can be justified. This then creates the basis for committing to identify and assessing reform options (the subsequent Phase 3).

7.1 Introduction

The outcome of this phase will be an understanding of whether subsidy *reform or removal* is likely to bring benefits to the environment and hence merit being considered for BHI reform.

The individual steps to be addressed are summarised in the box below.

Summary of the steps involved:

- 5) Does the incentive fulfil its objectives and are these objectives still relevant?
- 6) Does the incentive lead to any social and/or economic issue?
- 7) Are there more biodiversity benign alternatives hindered by the incentive?
- 8) Are there calls / pressures for the incentive to be reformed/removed?

7.2 The steps in detail

Step 5: Does the incentive fulfil its objectives (social, economic or environmental) and are they still relevant?

It is important to understand the original objectives of an incentive, whether they are achieved or not and whether they are still valid. Timescale can be an important aspect of an objective – policy makers may be seeking a particular effect for a specific period, e.g. during a time of economic adjustment or transition. However, many subsidies have no time limit. Hence, there are incentives which are given even though the economic or political target has already been achieved or it has been confirmed that the target is actually not achievable. A good example is the tax exemption on agricultural machines (tax exemption from motor vehicle tax) in Germany. This exemption was introduced in 1922 with the goal of motorising the agricultural sector. This goal is long achieved but the instrument still exists.

Issues to explore in this step of the analysis include:

- **What are the objectives of the incentive?** The official objectives may be expressed in terms of environmental, economic or social outcomes or some combination of the three. They may be surmised from the legislative history or statements by officials if not clearly set out by the authorities. In some cases, where no written evidence is available, expert judgement may be required.
- **Who are the intended recipients of the incentive** (i.e. input producer, finished product producer/input consumer, or finished product consumer)? This point will help understand whether the incentive reaches the intended recipients or whether the incentive goes to non intended recipients (e.g. the OECD (1998) notes that support conditional on output and input levels tends to accrue primarily to the relatively large, and often more wealthy, input producers).
- **Are the incentive's objectives still justified in relation to the needs?** This refers to the validity of an incentive in relation to the objective being sought – i.e. in some cases an incentive may outlive its objectives (e.g. a subsidy may be introduced to support an economic sector in a period of crisis or high competitiveness, but remain in place even after the period of difficulty is overcome). In such cases reform may be needed.

Has the incentive been in place for a long time and/or lacks an in-built review process? It is important to investigate the length of time an incentive has been in place,

as a measure that has been in place e.g. for a decade or two may risk to be outdated and/or not respond effectively to current economic/social/environmental conditions, as these may be different to those existing when the incentive was first introduced. It is useful also to check whether the incentive has a sunset clause (e.g. it is due to reform/removal by law) or an adaptive review process, which could de facto justify the need for review or removal.

Box 11: Subsidies objectives and their validity – some examples

General cases

In the case of aviation fuel tax exemption, it can be said that the objective (i.e. the promotion of the industry) is already outdated and there is no justification on economic or social reasons for a zero tax (Valsecchi et al., 2009). In effect, the tax exemption is de facto a subsidy to the fuel, its suppliers, producers and users. Given that aviation related GHG emissions are growing faster than in any other industry and that there is a high CO2 emissions per kilometre travelled, the tax exemption should be considered for reform (Valsecchi et al., 2009).

Denmark's 1989 Forest Act, accidentally led to a 'perverse incentive harmful to the environment'. The Act made it illegal to leave areas of potentially productive forest 'unproductive', which in turn incentivised deforestation in order to maintain the property rights over forested land. Changing this provision was a key part of the reform of the perverse incentives and increase the forested area in Denmark. (SCBD 2011)

From the case studies

In the case of the water abstraction regime, the current system was designed in 1960 and aimed to manage competing demands for water. The aims or objectives of the system, as it is designed, are not to protect the environment. Although the use of water by abstractors is still justifiable, as is the need to manage competing human demands for water, the current system and the fact that it continues to under-price the water resource is no longer justified nor fit for purpose.

In the case of the eligibility criteria for CAP Direct Payments, the specification and validity of the objectives are less of an issue compared to their interpretation and implementation at the national level. It is the latter, rather than the former, that is causing potential damage to biodiversity and habitats.

Step 6: Does the incentive lead to any social and/or economic issue?

It is particularly important to highlight the economic and social relevance of the incentive and its potential socio-economic trade-offs, conflicts and controversial issues. Unpicking these elements will help in enhancing the success of the assessment and reform processes.

This step should briefly describe, in a qualitative form, the following:

- **What are the unintended economic impacts of the incentive?** (e.g. impacts on the prices of factors of production and intermediate inputs used by non-target industries, impacts on competitiveness of given sectors, threats to Small-Medium Enterprises (SMEs), trade distortions or barriers, etc.).
- **What are the unintended social impacts of the incentive?** (e.g. socially undesirable distributional/equity impacts on low-income consumers, health issues etc.).
- **Who are the winners and who are the losers?**

Furthermore, a criteria matrix can be used to set out the degree of expected economic and social impacts in a qualitative way. For each dimension, the expected impact (positive or negative) could be ranked according to its significance, for example assigning a score for negative impacts (--- high; -- medium; - low) and for positive impacts (+++ high; ++ medium; + low). Expert judgement can help to reach a decision about the likely significance of these impacts.

Indicator	Degree of expected impact
Economy	
▪ Income / employment	
▪ Productive capital	
▪ Competition / innovation	
▪ Market mechanisms	
Social	
▪ Health / security	
▪ Education, identity	
▪ Culture, values	
▪ Legal security, equality	
▪ Solidarity	

Source: Adapted from ARE, 2004

Box 12: Socio-economic issues related to subsidies – some examples

General cases

Reduced VAT for domestic energy creates an incentive for increased greenhouse gas emissions via incentives for increased energy consumption (energy use would be lower with standard VAT rates). In the UK, the lower VAT rate could be seen as a € 2.5 billion/year subsidy for electricity use and almost € 2 billion/year for natural gas use, estimated to cause around 7.5 Mt of CO₂ emissions per year (see IEEP et al. (2007)). Looking at the finances and the GHG emissions would lead to a substantial rationale for subsidy reform. However, this subsidy has also a substantial social rationale – as gas and electricity is thought to fulfil ‘basic needs’ and therefore the removal of the subsidy can be questioned on social grounds. A closer look at the ‘social objectives’ of the subsidy, including a consideration of who the beneficiaries are, shows that the subsidy is not specifically targeted at low-income households and therefore its efficiency can be questioned. It is a ‘blunt’ instrument and may not be offering value for money and hence merit assessment as to whether a more targeted subsidy could respond better to social objectives while reducing environmental harm and reducing the burden on the public purse (Valsecchi et al., 2009).

Another similar case can be observed in the instance of reduced VAT for drinking water. This is in place in numerous countries of the EU, including the UK where there is a zero VAT rate. This subsidy is thought to have significant environmental impacts due to higher levels of water consumption. However, as in the previous case, this subsidy is mainly justified on the basis that drinking water is one of the ‘basic needs’. Nonetheless, again, the subsidy is not primarily targeted at low income households and hence its efficiency can be also questioned. (Valsecchi et al., 2009).

Several Member states have commuter subsidies in place which often have a rationale to increase the access to job markets for people living in rural areas. The subsidies themselves mainly comprise of tax deductions for travelling expenses from the income taxes. However as this often includes travelling by car, this has the potential to increase fuel use, pollution / GHG emissions, with direct and indirect consequences for biodiversity. The reform of this subsidy is difficult mainly due to trade-offs between social and environmental considerations and opposition from commuters. (Nordic Council, 2011)

From the case studies

In the case of the eligibility criteria for CAP Direct Payments, land managers may be impacted upon if they were to forfeit their SPS payment for a proportion of their land if they claimed for areas that were subsequently deemed to be ineligible. The economic impact will vary on a farm to farm basis. In extreme cases, this has the potential to make the difference between a farm that is profitable or unprofitable and therefore could lead to farms being abandoned – with knock on environmental and social impacts (however, no examples that could be identified where this has in fact been the case).

In the case of the water abstraction regime, the characteristics of the system have led unintended economic impacts and market failures / distortion. For instance, the system creates a situation in which the true cost of water is not adequately reflected such that water abstraction charges are <4% of a customer's water and sewerage bill. Moreover, there is also little trade in licences which creates inefficiencies such that licences aren't allocated where the need is greatest (abstractors who do not need to take their full water allocation do not hand back or sell-on licences as their needs change).

Step 7: Are there more biodiversity benign alternatives hindered by the incentive?

This step aims to assess whether more environmental/biodiversity friendly alternatives are available compared to the activities/services/technologies which are subsidised / incentivised, and whether these are hindered by the existence of the incentive (i.e. by technological lock-in). The main concept behind this step is that if the technologies and products likely to replace the previously subsidised products and modes of production have lower impacts on biodiversity and the wider environment, the incentive's removal is likely to bring significant environmental benefits. It should be noted that this usually will require some judgement from the analyst (Pieters, 2003).

Questions to be addressed include:

- Are there alternative technologies, products, services or modes of productions that could replace those incentivised by the subsidy?
- How do the environmental/biodiversity impacts of these alternatives compare with those of the subsidised ones?
- Is the implementation of these alternatives hampered by the incentive under scrutiny (e.g. does the incentive leads to technology lock-ins)?
- What is the likelihood of these alternatives replacing the ones which were previously incentivised (e.g. are they sufficiently developed, are they easily available, is the market ready for new products/services/technologies, etc.)?

Box 13: More biodiversity benign alternatives - an example

The establishment of the Payment for Ecosystem Services (PES) programme between the Vittel company and farmers in France offers an example of a more benign alternative to the intensive agricultural practices which were the common practice beforehand (see also Box 16 and 19). As a result of this programme, the adoption of more extensive forms of agriculture accompanied by the payments to facilitate this transformation represents a more biodiversity-friendly alternative. (CBD, 2011)

Step 8: Are there calls/pressures for the incentive to be reformed/removed?

Finally, it is important to consider whether there are a range of enabling factors surrounding the incentive. The likelihood of success depends on the reform being practical and enforceable, and also on a range of enabling or hindering factors surrounding the subsidy. Stakeholder influence (e.g. lobby opposing reform) or public calls for reform can also affect the acceptability and public understanding of the need to reform. Note that a call for reform by the public (individuals, NGOs, press) can also be an important indicator of the need for reform (e.g. due to environmental harm or social injustice).

The analyst needs to consider:

- **Are there existing calls for the subsidy removal/reform?** And if so, can the reform be supported and potentially informed by members of civil society (e.g. NGOs, trade unions, industry associations, etc.).

Box 14: Pressures to reform – some examples

General cases

There is a considerable scope for reform of the aviation tax exemption (as already discussed in the Box 7); however there is a strong industry opposition to the reform. In addition, due to numerous bilateral fuel tax agreements, it is essential to have consistent approach through EU and neighbouring countries to avoid fleets refuelling in other countries. (Valsecchi et al., 2009)

From the case studies

In the case of the water abstraction regime there has been considerable pressure for reform, especially following the results of the 2008 Cave Review on competition and innovation in water markets in England and Wales. This led to a commitment being made in the 2011 Water White Paper to change the water abstraction regime by the mid to late 2020s and the commitments made in the corresponding 2011 HM Government Paper on Water for Life.

7.3 Summary assessment
















Similarly as for the steps 1-4, a traffic light system can help visualise the overall outcome of the following steps 5-8 described above, and identify whether the subsidy is amenable to reform or removal.

Here the summary assessment is attempting to arrive at an answer to the question “Is there a problem such that the removal or reform of the incentive is needed?”, where a red light is “yes there is a problem and therefore reform action needs to be given further consideration”. In this case, the incentive is amendable to reform / removal because of various factors (e.g. the incentive no longer meets its objectives, there are significant additional economic or social issues arising from the subsidy, there are limited obstacles and sufficient political support).

An orange light indicates that reform / removal of the incentive should be approached with caution (e.g. where there are few alternatives which are better or they are not immediately available, or where there is little existing pressure to reform the incentive).

A green light indicates that there is no problem with the current situation and/or no opportunities for improvement (i.e. the incentive fulfils its objectives, helps offer important social benefits, there are no alternatives and no calls for reform).

Only one option per question should be chosen (the others should be deleted as applicable).

	Select one of the three options (delete others)	
5) Does the incentive fulfil its objectives and are these objectives still valid?		Yes, it fully fulfils objectives that are still valid and hence there are no specific argument suggesting reform.
		Partially
		No –either not fulfilling objectives; or fulfilling objectives that are no longer relevant.
6) Does the incentive lead to any social and/or economic issue?		No negative issues and/or positive impacts
		Some issues
		Significant negative issues that create a case for reform
7) Are there more biodiversity benign alternatives hindered by the incentive?		Alternatives do not exist and/or the subsidy do not hinder other options – in other words there are no reasons to stop and assess the incentive and eventual needs for reform
		Alternatives exists but not immediately available
		Other alternatives exist and are available to replace the subsidised option – in other words there are reasons to stop and consider policy change
8) Are there pressures for the incentive to be reformed/removed – suggesting a problem?		No pressures, suggesting that the subsidy is not perceived as an issue and policy can continue as usual
		Some pressures suggesting a need for reform
		There are significant pressures, suggesting that there may be a problem meriting attention (hence the red light)
Therefore: Is there a problem needing attention and should the incentive remain in place or be reformed/removed?		There is no problem and the subsidy can remain in place at this point in time.
		Reform is advisable, although it can be debatable and/or relatively not urgent
		There is a significant problem and reform options should be assessed with a view of identifying promising reform initiatives.

This phase therefore aims to better understand whether a perverse incentive needs reform (or removal) and present the arguments for committing to identify and assess the feasibility and benefits of different reform options under Phase 3.

8 Phase 3: Reform scenarios

Once it has been identified that reform or removal is needed, this phase should help clarify the reform options available and their implications.

This can help clarify which options should be on the BHI reform road map.

8.1 Introduction

This phase serves the aim of clarifying which options for reform or removal of the perverse incentive are viable, and what their consequences will be for biodiversity, as well as for the economy and society. One or more options could therefore be explored, including:

- Reform of the incentive's policy design:
 - with the sole alteration of the subsidy design (changes can be introduced to the subsidy amount, recipients, timeframe and conditionality); and
 - (also) with adoption of alternative measures/instruments.
- Elimination of the incentive:
 - outright elimination; and
 - phased elimination.

A thorough analysis of reform/removal options should aim to clearly assess and weigh the costs and benefits of each reform scenario, in order to choose the best outcome. This can be seen as a process equivalent to a policy impact assessment. Should resources not be sufficient for a full impact assessment, however, a less detailed and likely more qualitatively-oriented analysis should be undertaken in order to roughly compare different options and ensure that the chosen reform or removal option does not result in higher, rather than lower, impacts on biodiversity. Flanking measures should also be considered in order to mitigate possible detrimental effects on society (e.g. in terms of distributional impacts) or the economy (e.g. reduced competitiveness).

The individual steps to be addressed are summarised in the box below.

Summary of the steps involved:

- 9) Is there a suitable reform option (s) and what could it entail?
- 10) What could its expected costs and benefits be?
- 11) Are there obstacles to the incentive being reformed/removed?
- 12) Is the reform understandable, practical and enforceable?

8.2 The steps in detail

Step 9: Is there a suitable reform option (s) and what could it entail?

It is important to understand whether incentives are the best and most cost-effective instrument to tackle the issue at stake, whether there are preferable alternatives (e.g. regulatory instruments, quotas, taxes etc.), or whether it would be preferable to phase out the incentive completely (e.g. if its objectives are no more valid).

This step therefore should explore the following questions:

- What alternatives exist for meeting the incentive's objectives (if still valid)?
- Should the incentive's objective no longer be valid, could it be removed?

Note that this step helps set the stage for the analysis of the impacts of policy reform under step 11, i.e. it helps identifying those reform options that will have to be explored in more

detail. The number of policy options identified in this step, and the level of detail of each of them depends also on the resources available for the analysis. A thorough analysis will require the identification of a set of realistic policy options for detailed impact assessment. A simpler approach could aim instead to identify only one or two options, which can help providing (some) evidence on reform feasibility.

Box 16: Reform options – some examples

General case

The establishment of the Payments of Ecosystem Services between the Vittel company and farmers in France offers an interesting example for removing biodiversity harmful incentives. Increased intensification of the agricultural practices carried out in the area of Vittel's artesian spring was threatening to make the company's catchment no longer able to comply with the regulation of mineral water quality. As a result, Vittel has established a payment scheme which incentivised the use of less intensive farming practices, essentially leading to extensive dairy cattle ranching, which ensures the sufficient water quality for Vittel while at the same time gives farmers alternatives for their livelihoods. The comprehensive set of provisions of the incentive package included, long term contracts, subsidies to facilitate transition to more biodiversity-friendly practices or abolition of debt linked with land acquisition. (CBD, 2011)

From the case studies

In the case of the water abstraction regime in the UK, regulatory changes have already been introduced through the Water Act 2003 to improve the sustainability and efficiency of the current system, although some are yet to be introduced. More extensive changes are foreseen following commitments made in the 2011 Water White Paper, which committed to changing the water abstraction regime to one that is more resilient to the challenges of climate change and population growth and that better protects the environment. The Paper anticipates a new regime to be in place in the mid to late 2020s, with the consultation for reform to run over the next 2 to 3 years. It is hoped that the new system will better reflect the value of water, its relative scarcity and the value of ecosystem services to ensure that water ecosystems are protected. Licenses will be designed to vary the volume available for abstraction according to overall water availability. There is also no intention to fund compensation for any losses following a change to the license - this will not be legally justified since changes will be designed to protect the environment.

In the case of the eligibility criteria for CAP Direct Payments, greater clarity would need to be provided in the CAP regulation and technical guidance on eligibility criteria at the EU level. Institutional capacity at all levels would also need to be improved to avoid misinterpretations that lead to environmentally damaging implementation in the future

Step 10: What could the expected costs and benefits of the reform options be?

Reform options may not simply have the effect of eliminating (or reducing) the cause of biodiversity damage. They can also lead to a range of additional environmental, social and economic costs, benefits and trade-offs that should be explored in order to compare options and select those with higher net benefits. Key issues to explore, for each reform option, are:

- **What are the environmental impacts and, more specifically, the related direct and indirect effects on biodiversity, associated with each scenario?** For further details on how to assess environmental impacts, see also guidance on step 3.
- **What are the economic impacts associated with each scenario?** These include effects on public accounts (e.g. in terms of fiscal revenues, GDP, etc) and on the economy (e.g. for the sector(s) affected by the subsidy, for winners and losers within the sector (including new entrants/future industry), for consumers/citizens, for competitiveness and innovation, etc.). In this regard, some consideration should be given to the trade impacts of subsidy reform. In particular, whether the incentive's removal/reform will have spill-over effects, (e.g. favour production overseas, relocation of polluting industry abroad and/or substitution of imported resources and products for domestic ones).

- **What are the social impacts associated with each scenario?** In particular, the analysis should focus on effects on income distribution, jobs, skills, availability of goods/services, health, etc., and on ethical impacts such as regard fairness of income, appropriateness of support and implications for future generations.

Are flanking measures necessary? If potential economic, social and/or political impacts are identified, flanking measures should be made available. Mitigation or compensation mechanisms should be identified to diminish negative effects and maximise the overall positive impacts of policies. These can take the form of either dynamic support (i.e. measures that support the change in the present and sustain/enhance it in the future) or static support (i.e. compensation for 'losers'). The first should be favoured over the latter. See some examples of flanking measures in the box below.

Box 17: Compensatory measures

If it is decided that a support measure should be reformed or removed, compensation can be offered to those who would lose from the support reduction through mechanisms such as:

- temporary compensatory payments: compensatory payments, which are decoupled from output levels, can be paid on a temporary basis to ease the transition of the workers towards new employment opportunities, such as through job retraining schemes, or to restructure the industry so that it can compete successfully without the support;
- other adjustments: adjustments can be made to the existing social security, fiscal or other systems — depending on national policies and priorities — to counter any potentially inequitable effects of support removal. However, since these adjustments tend to be permanent rather than temporary, they are often not suitable for compensation that is intended to ease the economic hardship of previously supported workers over a transitional period.

Where required, these compensatory mechanisms can sometimes be funded through a partial recycling of the funds previously used to maintain the support.

Source: OECD, 1998

Methodological notes:

Quantitative estimates should be used whenever possible (even if only a rough order of magnitude quantitative estimates). Tools that assess financial and economic parameters in comparing costs and benefits (e.g. cost-benefit analysis, cost-effectiveness analysis) facilitate comparison between different alternatives. When such kind of analysis is not possible, qualitative tools such as multi-criteria analysis could be used, i.e. tools that allow joint consideration of criteria based on different measurement units (e.g. analytic hierarchy process, preference rankings, weighted sum etc.). Simpler qualitative description can also be helpful, should resources and/or data availability do not allow for more detailed analysis.

The analyst should address, where possible, not only the expected direct effects of each reform scenario, but also second-order effects (addressed according to their order of relevance). Also, consideration needs to be paid not only to the effects due to take place in the country where the subsidy is provided, but also to the ones expected in other countries, depending on the scale of the subsidy effects – for instance:

- whilst for water issues the relevant geographic scope might be neighbouring countries, in air pollution issues a much wider geographic range might be the reference;
- whilst for some goods (e.g. water services) the relevant market will constrain the assessment of economic impacts to a region, for others (e.g. energy products) the analysis will need to address a broader geographical scope.

When making these assessments, short-term, medium-term and long-term perspectives as well as effects on future generations should be taken into account when relevant. A broad time approach can be especially relevant when some benefits of the reform take a long time to arise, which is often the case as far as biodiversity impacts are concerned.

Box 18: Costs and benefits of reform options – some examples

General

The case of **coal subsidies** removal in the United Kingdom showed the difficulties of subsidy reform when accompanied by an economic recession. The reform itself started with privatisation in the late 1970s, followed by the subsidies removal in the mid-1980s. The negative impact the reform had on the coal-mining jobs and communities was further deepened by the economic recessions in the 1980s and early 1990s. To counteract the negative impact on coal-related jobs compensatory measures were introduced. In particular, where government aid focused on creating an enabling environment for alternative economic activities in mining areas there was some increased support for the reform as well as fostering economic growth / avoiding further decline. As a result, around 60% of the jobs lost in the 1980s were replaced by non-coal jobs within the same area and the pace of development of non-coal jobs continued to accelerate. (Nordic Council, 2011; IEEP et al., 2007).

An example of a successful subsidy reform with a significant impact on biodiversity is the removal of subsidies for **wetland drainage** in Austria. The subsidies for the wetland drainage for agricultural purposes were removed, accompanied by additional incentives to promote conservation, including compensation to land-owners, restriction of hunter access or promoting sustainable harvest of area's reed. A combination of economic incentives, information dissemination and compensation led to a successful subsidy reform, which resulted in net gains for biodiversity and the ecosystems that benefit people. (CBD, 2011)

From the case studies

Given the limited resources, the case studies were only able to superficially consider the costs and benefits of reform.

In the case of the water abstraction regime, it was clear that reform might result in various potential cost, including for instance, to businesses and farmers if they would be required to change their productive processes where abstraction to be reduced or eliminated. The removal of the requirement for abstractors to be paid compensation for any losses if abstraction licences are amended or revoked could also have some economic impacts on businesses (after 2012, compensation will no longer be payable for licences without expiry dates where the abstraction may be causing environmental damage). However, compensation itself would also have potential consequences, in that that generating the required amount needed to pay abstractors compensation could increase the cost of water abstraction (e.g. an estimated £352 million for alterations to public water supply abstractions to ensure compliance with the Habitats Directive). More generally, if public water supply is reduced due to stricter requirements for abstraction, then these losses would need to be replaced by new supplies or reductions in water demand which could impact on prices for customers where the costs of measures taken to offset any loss in water supply has to be recuperated (e.g. from water users / consumers).

The case study on the eligibility of CAP Direct Payments was unable to identify any economic or social costs or benefits of note.

Step 11: Are there obstacles to the reform/removal of the incentive?

It is important to consider the feasibility of reform to ensure priority is given to those subsidies for which removal/reform is realistic. The likelihood of success depends on the reform being practical and enforceable, and to what extent there are factors hindering its reform.

Should a country/regional administration be willing to reform a subsidy, it will need to assess whether it falls under their formal national/regional competence or not. For example, there are international air transportation treaties that hinder a comprehensive introduction of unilateral kerosene taxation by a single country, or European frameworks such as CAP that determine the rules and conditions of subsidisation at the EU level.

Elements to address include:

- **How politically important/sensitive is the initiative?** Consider both the national and EU levels. Depending on this, the policy maker should involve actors and stakeholders at different levels in the reform process.
- **Have there been attempts to reform a subsidy in the past and if yes, why have they failed or only partly succeeded?** e.g. what were the barriers and the obstacles at that time, which one(s) could still be an issue if reform/removal was going to be proposed again, or has the underlying situation changed?

The existence of obstacles to reform can be critically important to help in identifying reform options as any reform option is a package of measures.

Box 19: Obstacles to reform – some examples

General cases

There is a considerable scope for reform of the aviation tax exemption (as already discussed in the Box 7); however there are significant obstacles to be overcome if the reform is to be realised. Foremost, there is a disincentive for reform both at the national, but also at the EU level, resulting from a potential competitive disadvantage vis-à-vis other countries in attracting travel and its economic benefits. Germany is one of leading producers of bioethanol and has a long tradition of political support for biofuels. The tax exemptions for biofuel productions, which de facto function as a subsidy for biofuels producers and was estimated to amount to around €619 million in 2004, has undergone successive reforms to gradually increase the tax despite the industry opposition. The significant budgetary implications of this subsidy facilitated political support for the reform. However, in 2007 a quota system was introduced which aimed to decrease the impacts of tax introduction and hence de facto re-introduced another, indirect, form of subsidy. (The Nordic Council, 2011)

From the case studies

In the case of the water abstraction regime, it was clear that there were some obstacles to reforming the system. For instance, current efforts to voluntary reform / amend some abstraction licences are proving ineffective. Moreover, in the past, uncertainty over the impact of abstraction on the environment has been a barrier to altering abstractions. In terms of future reform, the removal of the requirement to pay compensation for loss of abstraction rights is proving to be a particularly contentious issue. Additionally, some abstractors are unlikely to want to give up what they perceive to be their property rights, especially as these may have been in place for decades. However, the sensitivity relates to the established rights of a relatively small number of water users rather than wider political interests.

In the case of eligibility criteria for CAP Direct Payments, there appear to be fewer obstacles, in that the issues are discussed regularly and many of these have been resolved over time. Much rests however on interpretation of EU regulation and guidelines and so there are always like to be areas of uncertainty unless rules can be interpreted less stringently.

Step 12: Is the reform understandable, practical and enforceable?

This step aims to help identify whether the reform can be understandable for policy-makers and the public and if it is practical (i.e. feasible) and enforceable. The following issues should be investigated:

- **Communication:** A very relevant factor for reform success is communication. It is important to make the reform 'understandable' for both policy makers and the public. The assessment should investigate how easy to communicate a reform or removal of the given incentive will be, which public/stakeholders' objections it is likely to receive (e.g. is it perceived as unfair to some social groups, like low income people?) and how easy/difficult it will be to address those. It is important that, in the implementation phase, policy makers take into account the observations made under this step, to make sure the reform is communicated as clearly and transparently as possible.
- **Feasibility:** A general understanding of how feasible and practical reform or removal of the perverse incentive could be should be provided. This should include insights on the timeframe needed for reform (e.g. is it viable in the short term, or will it require a longer timeline? Is it conditional on external factor, e.g. the financial recovery of a given

economic sector?) and its complexity (e.g. is it a simple case of removal, or is it a staggered process, or does it require a complex set of accompanying measures etc.?). Issues of capacity building and coordination across agents (stakeholders, different government department, different levels of governance – national, regional, local, EU etc.) should also be stressed.

- *Enforceability*: Issues related to the enforceability of possible reform options should be highlighted, including monitoring, fines and liabilities, need for regular policy revision processes etc.

Box 20: Understandability, practicability and enforceability – some examples

General

The case of introduction of Payments for Ecosystem Services (PES) by Vittel in France for farmers to help safeguard water quality and hence the Vittel product, shows the importance of communication in removing the biodiversity harmful incentives. Given the initial resistance of farmers to change, a multidisciplinary research team, underpinned by several partnerships, was set up in order to identify the optimal agricultural practices needed to be adopted and estimate the level and nature of payments needed to help encourage a transition to these practices. This has proved to be crucial for the communication and mediation purposes of the change of agricultural practices in the area. It has also allowed the Vittel company to establish a dialogue with farmers based on trust and enabled the set of incentives and practices that were mutually acceptable to be identified. It was a long process that only succeeded given the tenacity of Vittel given their understanding of the risks to their product. (ten Brink et al 2011 in TEEB 2011 and CBD, 2011)

From the case studies

In the case of the water abstraction regime in the UK, it is clear that much will depend on the final details of the system reform in terms of whether the reform is understandable and practical. With regards to enforcement however, the reform options should be enforceable given that the enabling framework already exists, given the powers invested in the Environment Agency under the Water Resources Act 1991 and those inferred by the Environment Act 1995.

8.3 Summary assessment

A traffic light system can help visualise the overall outcome of the last three steps, and identify whether the subsidy is amenable to reform or removal and whether the reform/removal of the incentive should be considered or taken forward.
















At this stage, the summary assessment is attempting to arrive at an answer to the question “Are there amenable options for reforming or removing the incentive?”; where there is a green light then “yes, proceed with reform initiative” and where a red light then “no – the reform options do not merit being pursued”. In the latter case if the incentive is clearly harmful to biodiversity alternative reform options or policy filters should be assessed and phase 3 repeated.

A red / orange light indicates that reform / removal of the incentive should not be attempted or should be approached with caution or where there are significant obstacles or where there is no existing pressure to reform the incentive (e.g. where there is no suitable reform option, where the costs are too high compared to the benefits, where the option is neither practical or enforceable).

A green light indicates that appropriate, cost-effective, practical and enforceable reform options / scenarios are available, and therefore that the incentive is amendable to reform / removal.

Only one option per question should be chosen (the others should be deleted as applicable).

	Select one of the three options (delete others)
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9) Is there a suitable reform option(s)?		Yes
		Partially
		No
10) What could its expected costs and benefits be?		Benefits outweigh costs
		Costs and benefits are of the same magnitude
		Costs outweigh benefits
11) Are there obstacles to or pressures for the incentive's reform/removal?		No/limited obstacles, suggesting that reform is possible
		Some obstacles to reform, suggesting that reform may be encouraged but with caution
		Obstacles to reform are significant (stop and explore whether these can be addressed – if so the light can change)
12) Is the reform practical and enforceable?		Yes
		Partially
		No
Therefore: is the reform option advisable?		Yes, proceed with the reform initiative
		Partially (e.g. additional measures needed)
		No

Overall a range of green lights would suggest that there is a good case for incentive reform and that opportunities to launch and implement the reform should be sought (Phase 4).

9 Phase 4: Opportunity for action

This phase aims to help understand the underlining policy/political readiness to reform, in order to assess the timeliness of reform and whether reform of the incentive should be prioritised and pursued, ideally in the short term. This then clarifies which incentives should be raised for due political attention.

9.1 Introduction

This part of the analysis aims to investigate whether the reform is timely, whether it has sufficient political and public support and whether it can be potentially led by a policy 'champion' and/or be developed in the context of a wider economic and policy context that offers the right framework and opportunity for reform. These are all important elements that can affect the likelihood of success of a reform process. An incentive that, in the course of the whole assessment process, proves to be truly damaging to biodiversity and in need of reform, and that in addition has the sufficient external support to reform, should be arguably considered for reform, looking at prioritising those subsidies that are most amenable to reform or phasing out and providing a timescale for the reform process.

The individual steps to be addressed in this phase are summarised in the box below.

Summary of the steps involved:

- 13) Is there a window of opportunity for reform?
- 14) Is there a potential policy champion for reform?
- 15) Is there public / political support to reform?

9.2 The steps in detail

Step 13: Is there a window of opportunity for reform?

In order to ascertain the timeliness and likelihood of success of a reform programme, it is crucial to understand whether specific windows of opportunities for action exist, either at national, local or EU level. For example, the recent financial and economic crisis presents an opportunity for governments to revise their budgets and increase revenues. In this context, the removal of incentives harmful to biodiversity and the wider environment has the potential to create revenues while reducing environmental impacts. In some cases, it would also create opportunities to increase social equity and, potentially, offer additional by-products such as job creation and technological innovation. Furthermore, it can help achieve given biodiversity objectives and other environmental targets, both at national level (e.g. improving water management as in the UK Water White Paper), EU level (e.g. reforming environmentally harmful subsidies as recalled in the EU Resource Efficiency Roadmap), or international level (e.g. halting biodiversity loss by 2020 (Aichi Accord targets, CBD Strategic Plan 2011-2020, see ten Brink et al (2011) in TEEB (2011)). Such opportunities should be briefly listed in this step of the analysis, and should be taken into account when communicating the reasons for reform to stakeholders and the wider public.

Box 21: Windows of opportunity for reform – some examples

Some opportunities for reform occur regularly such as when the Cohesion Policy, Common Agricultural Policy (CAP), Common Fisheries Policy (CFP) and associated European Fisheries Fund (EFF) are reformed as part of the wider budget reform / reform of the multiannual financial framework (MFF). Others can be created – eg reporting on subsidies. Yet others are more ad hoc, for example accidents - oil spills in the Gulf of New Mexico, mining disasters, major pollution events or accidents (e.g. Seveso) – and crisis, such as the financial crisis. The financial crisis has led to the introduction of a carbon tax in Ireland and planned water charges, addressing externalities and

resource costs, and de facto reforming implicit subsidies.

There are significant distributional issues with relation to transport taxes which offer an opportunity for BHI reform. In the EU-15 households account for just over 50% of energy taxes paid, while their final energy consumption account for just above 26% of total energy consumption (IEEP et al., 2007). Heavy goods vehicles put a significant stress on roads and hence carry associated costs on road infrastructure maintenance. This in effect implies that the heavy goods vehicles are de facto receiving an implicit subsidy due to lack of full cost recovery. Without the subsidies there would likely be less road haulage, resulting in lower climate and pollution impacts. Road pricing offers a potential way to recover some of the costs, as has been showed in the cases of heavy goods vehicles charges in Austria, Germany and Switzerland introduced over the years 2001-2005. The strong external pressures on the environment and economy, which the lack of pricing of the heavy-goods vehicles implies, has been a key driver in the introduction of the road pricing and generally offers an opportunity for driving the reform. (Nordic Council, 2011)

The reform of fisheries subsidies in Norway shows the importance of economic context for the EHS reform. The falling oil prices in 1980s, which significantly decreased governmental revenues, encouraged political support for reform by convincing stakeholders of the need of fiscal restraint. This has created an enabling environment for the gradual fisheries reform - resulting in a decrease in the level of subsidies by around 85% from \$US 150 million to \$US 30 million throughout the years 1981-1994.

Similarly, the severe financial crisis in New Zealand in 1984 created also favourable conditions for phasing out agricultural and fisheries subsidies. Faced by a severe fiscal constraint, the government had decided to remove all agricultural and fisheries subsidies as a part of economy-wide reform. The reform had a positive effect on biodiversity, both in agricultural and fisheries sector. (CBD, 2011)

From the case studies

In both the case studies examined for reform (the water abstraction regime and the eligibility criteria for CAP Direct Payments) there are windows of opportunity for change. In the case of the water abstraction regime, this is being driven the commitment in the 2011 Water White Paper to change the water abstraction regime by the mid to late 2020s, whilst the current negotiations for CAP Reform for 2014-2020 also provide the opportunity for improving the eligibility criteria.

Step 14: Is there a potential policy champion for reform?

For reform to be successful, strong leadership and a broad coalition of support is needed. A strong political advocate, or 'champion' (e.g. a dedicated civil servant) of reform will aid the communication of a clear message and support the development of measures to limit or compensate for any negative effects of reform (IEEP et al., 2007).

For example, this can be a given governmental department or politician willing to push for a certain reform (e.g. because deemed particularly damaging or expensive, or as part of a wider political manifesto), or a group of stakeholders concerned by the impacts of a particular incentive (e.g. consumer associations), or a specific local/regional administration particularly hit by a subsidy (e.g. a region particularly hit by water scarcity may be keen to reform irrigation subsidies). Should such champions exist, they should be clearly identified in the assessment. Lessons from other countries who have successfully removed a given perverse incentive should also be taken into account.

Box 22: Policy Champions – some examples

The above mentioned Irish fiscal reform has benefitted from the work of Prof Frank Convery and the London congestion charge by the then Major of London Ken Livingstone. Without the personal commitment and political risk taking, many reforms would not have happened

Step 15: Is there public/ political support to reform?

It is important to understand and, when possible, increase public and political support for the reform in order to increase its likelihood of success. In order to do so, it is worth highlighting:

- **Broad inclusion:** It is important to identify who should be involved in the reform process, as inclusion and engagement of all stakeholders is a key element for success. To ensure

high level political support for the assessment process, the full participation of relevant agencies, transparency and public participation is required. Input into reform should be broadened from politicians and civil servants to stakeholders and civil society.

- *Identification of losers and winners:* It is as important to identify the losers from the reform as to point out the winners, since the latter might provide the political support necessary to face the losers.
- *Assessment of co-benefits from the reform:* Highlighting the co-benefits of the reform helps to gather support to implement it, helping to overcome objections to reform from sectoral lobbies.

Box 23: Political and Public Support for reforms – some examples

Generally speaking, for a successful reform of EHS/BHI the experience from various countries suggest that making the public aware of the distribution of the subsidies' benefits is crucial for minimising the resistance from vested interests. Transparency is critical. As noted in TEEB 2011 chapter 6, transparency is a key precondition for well-informed public debate on current subsidy programmes and can also make reform more appealing. Identifying who benefits from subsidies and highlighting their relative bargaining power can provide a powerful motivating force for change (OECD, 2003). By helping to debunk the myths surrounding subsidies and their reform, such assessments can also be useful to overcome resistance by vested interests.

This has proven invaluable for both fisheries and agriculture reform. As regards Enhancing transparency of farm subsidies in the European Union, TEEB 2011 noted that the 2006 financial regulations (EC, 2006a, 2006b) require 'adequate ex-post disclosure' of the recipients of all EU funds, with agricultural spending transparency to begin in the 2008 budget. The regulation has spurred watchdog initiatives such as the online services <http://farmsubsidy.org>, <http://caphealthcheck.eu> and www.fishsubsidy.org. These seek to monitor compliance by Member States and assess the quality of the released data. However, compliance with the regulation is still uneven.

Communication can also be critically important. For example clarifying explicitly which parts of the population (e.g. which decile) actually benefit from measures targeted at the poor can demonstrate clearly (where the case) that the incentives do not always effectively get to the intended recipients and hence reduce resistance and increase support for reform.

From the case studies

In the case of the water abstraction regime, there is clear and consistent support for change from across government departments and HM Government and from environmental organisations. There is however the potential for there to be some opposition from certain industries / abstractors. In the case of eligibility criteria for CAP Direct Payments, support is evident from the farming sector and environmental NGOs.

9.3 Summary assessment

A traffic light system can help visualise the overall outcome of the steps, and identify whether the subsidy is readily amenable to reform or removal.













Here the summary assessment is attempting to arrive at an answer to the question "Is the reform timely and does it merit prioritisation / short term action ?", where a green light is "yes" and a red light is "no".

A green light indicates reform is timely and should be prioritised and operationalised as the context is suitable for reform to be successful and there are the necessary windows of opportunity available for reform. Reform or removal of the incentive should therefore be pursued.

A red / orange light indicates that reform / removal of the incentive should not currently be attempted, or that it should be approached with caution, for instance because there is no current opportunity (or window) for reform or there is a lack of political / public support in the

current environment. This does not imply no action, but rather a focus on developing the conditions for success and planning for a reform initiative as soon as feasible. Overcoming the obstacles and creating windows of opportunity, finding champions to promote the incentive reform and communicating the benefits to help engender public and political support may facilitate the progress.

Only one option per question should be chosen (the others should be deleted as applicable).

	Select one of the three options (delete others)	
13) Is there a window of opportunity for reform?		Yes
		Partially
		No
14) Is there a potential policy champion to reform?		Yes
		Partially
		No
15) Is there public/ political support for reform?		Yes
		Partially
		No
Therefore: is the reform timely and does it merit prioritisation? Is it worth initiating the reform process?		Yes
		Partially / not a priority yet
		No

If all the conditions are in place (or potentially so), then the reform initiative should be launched at the suitable window of opportunity, with supporting evidence base (e.g. communication as to rationale for reform) to encourage support/facilitate success and avoid potential losses of political capital or indeed gain political capital from a timely subsidy reform which may reduce harm to biodiversity and liberate funds for other government priorities.

10 Applying the tool: case examples



In order to test the methodology proposed in this guidance, three case studies based on UK existing subsidies potentially damaging for biodiversity have been developed. **It should be noted that these are not meant to be a thorough investigation, nor to provide recommendations regarding reform prioritisation and reform options.** The choice of the case studies was made on a longer list of potential case studies. These three specific examples were selected by Defra, as they were considered particularly useful to illustrate how to use this assessment tool, and not because they were necessarily considered a priority for reform.










The case studies instead are therefore meant to provide an example of how the different steps of the tool here described should be addressed. Case boxes building on these case studies have also been included throughout the guidance document to provide additional clarity. The resources available for these case studies only allowed for a brief assessment. A very brief summary table is provided for each case study which highlights the headline outcome for each step of the guidance tool. The basis for these findings is then provided in more detail in a second table where the steps are considered in more depth, within the limits of this scoping study.

It is advisable that a more detailed assessment is made in future actual subsidies assessments.

10.1 CASE STUDY 1: The Water Abstraction Regime in England and Wales

Table A1.1 Summary Table - the Water Abstraction Regime in England and Wales

Key questions (steps)	Traffic Light	
Phase 0: Identification of threats to biodiversity and potentially harmful incentives		
1) Is there a threat to biodiversity?		Yes, significant threat that needs attention
Phase 1: Screening of incentive		
2) Is there a perverse incentive / subsidy?		Yes, substantial subsidy / incentive

Key questions (steps)	Traffic Light	
3) Does the incentive lead to potential significant negative impact on biodiversity?		Significant potential impacts
4) Are these potential biodiversity impacts limited by existing 'policy filters'?		Some mitigation, but not sufficient to fully offset the incentive's impact(s)
Therefore: Is there an incentive that is harmful for biodiversity?		
		Yes
Phase 2: Potential for reform		
5) Does the incentive fulfill its objectives?		Partially – current objectives not sufficient to address current and future challenges
6) Does the incentive leads to any social and/or economic issue?		Some issues
7) Are there more biodiversity benign alternatives hindered by the incentive ?		Yes, alternatives exists but not immediately available
8) Are there pressures for the incentive's reform/removal?		Significant pressures, suggesting that reform is urgently required
Therefore: should the incentive remain in place or be reformed/removed?		
		Reform should be considered in more detail
Phase 3: Reform scenarios		
9) Is there a suitable reform option(s) and what could it entail?		Yes











Key questions (steps)	Traffic Light	
10) What could its expected costs and benefits be?		Costs and benefits are of the same magnitude
11) Are there obstacles to the incentive's reform/removal?		Some obstacles to reform, suggesting that reform may be encouraged but with caution
12) Is the reform understandable, practical and enforceable?		Partially
Therefore: is the reform option advisable?		Yes – although caution is needed to ensure the details are practical and do not lead to excessive social or economic costs.
Phase 4: Opportunities for action		
13) Is there a window of opportunity for reform?		Yes
14) Is there a potential policy champion for reform?		Yes
15) Is there public/ political support to reform?		Partially
Therefore: is reform timely and should it be prioritised? Is it worth initiating the reform process?		Yes

Table A1.2 Detailed table – The Water Abstraction Regime in England and Wales


Key questions (steps)	Sub-questions	Answer	Traffic Light
Phase 0: Identification of threats to biodiversity and potentially harmful incentives			
1) Is there a threat to biodiversity?	What are the key threats to biodiversity that should be addressed?	Hydrological variability within rivers and streams is one of the factors influencing aquatic wildlife. Unnaturally low flows and altered flow regimes caused by over abstraction of water volumes can have damaging impacts on river systems, and their associated fish, invertebrates and plants. It has been estimated that 12% of water bodies are unsustainability abstracted with risks of damaging water ecosystems and not meeting good ecological status required under the Water Framework Directive. ⁴ Roughly 22 billion m ³ of water are abstracted in the UK each year, 52% from rivers and lakes, 11% from groundwater and about 37% from tidal waters	
	What are the economic activities\ sectors causing or exacerbating these threats?	Of the 13 billion m ³ /year extracted from non tidal sources in England and Wales, about half is used for public water supply. A further third is used for electricity power generation (especially for cooling). Industrial uses account for roughly 10% and aquaculture and amenity about 9%. Spray irrigation accounts for less than 1% of total abstraction (but is concentrated in the relatively dry Anglian region).	
Phase 1: Screening of incentives			
2) Is there a subsidy / perverse incentive?	What is the nature and size of the subsidy / incentive?	Licences are needed to abstract and impound water from rivers, reservoirs, canals, underground sources and, in some cases, from tidal waters. There are approximately 21,500 abstraction licences in England and Wales. Water abstraction is regulated under the Water Resource Act of 1991, and more recently, the Water Act 2003. The Environment Agency is responsible for granting licences to abstract or impound waters at a rate greater than 20m ³ /d. In most cases such an activity is unlawful without such a license, although	

⁴ <http://archive.defra.gov.uk/environment/quality/water/documents/www-ia-abstraction-1365.pdf>

Key questions (steps)	Sub-questions	Answer	Traffic Light
		<p>there are some exceptions to this. Abstraction of volumes less than 20m³/d are not controlled by licensing.</p> <p>Abstraction licences are accompanied by 3 types of charges:</p> <ul style="list-style-type: none"> • Application charge: the price for applying for a licence which is payable at the point of application • Advertising administration charge: where applications for a licence have to be advertised • Annual subsistence charge: with some exceptions, licences are subject to an annual subsistence charge which is made up of the Standard Charge and, where necessary, the Environment Improvement Unit Charge (EIUC). The Standard Charge is the means by which the cost of managing and regulating the water is recovered, and is meant to be proportional to the impact of that licence on the water resource. It is based on the authorized annual quantity of water specified in the license which can be abstracted, rather than the volume of water which is abstracted. Account is also taken of where the water is abstracted, seasonality, as well as the purpose of the abstraction. EIUCs are added to the Standard Charge for the recovery of compensation costs associated with amendment or revocation of licences to fund the Restoring Sustainable Abstraction programme. <p>The licence will specify what quantity can be abstracted, the point from which the abstraction must take place and the use to which that water can be put. Additional conditions may be applied which are intended to prevent abstraction practices that might cause environmental degradation or impact on other licence holders. In England and Wales, 17% of licences include such restrictive conditions.</p> <p>The current water abstraction system was put in place in the 1960s, and was designed to manage competing human demands for water rather than to protect the environment. It under-prices water in that the prices charged for abstraction do not reflect the full value of water either but rather the cost of managing the licensing system. The system therefore permits excessive levels of abstraction in some catchments. This has adverse effects on biodiversity and is considered to be unsustainable in the long run, particularly given</p>	


Key questions (steps)	Sub-questions	Answer	Traffic Light
		<p>predicted changes in climate.</p> <p>A recent report⁵ highlighted that various characteristics of the system mean that abstractors do not receive the right signals or incentives about sustainable decision-making, nor is it responsive or flexible enough to create market or regulatory signals which would encourage actions to more sustainably manage abstraction levels. For instance:</p> <ul style="list-style-type: none"> • Many licences have a fixed water allocation such that the volume of water permitted for abstraction is not linked to the actual volume of water available. Moreover, most licences have been issued without a time limit, making it difficult to review them. All new licences (since 2001) have an expiry date. Approximately 21% of licences in England and Wales now have time limits³. The remaining 79% do not have time limits. • Licences issued more recently have more restrictions, but there is still no mechanism to ensure that users respond to relative scarcity or abundance. Charges for licences are not linked to the volumes abstracted so do not reflect the availability of water or the value that users place on it. Once an allocation is made, there is no financial incentive to use it efficiently, or to consider its scarcity and other environmental impacts. • There is currently little trading or sharing of abstraction licences because of various real and perceived barriers (e.g. poor information, a lengthy administrative process, uncertainties about the outcomes), the consequence being that abstractors who do not need to take their full water allocation do not hand back or sell-on licences as their needs change. • Payments for licenses are paid into a fund of which a part (the Environment Improvement Unit Charge - EIUC) is used to compensate other license holders if they suffer a loss when changes are made to their license to address over-abstraction. This incentivises license holders to wait and seek the maximum compensation payment rather than adapt quickly and at least cost. <p>Overall, it is clear that the subsidy is not one that was intended as such when the current abstraction and pricing regime was established, as at the time environmental impacts and</p>	

⁵ OFWAT & EA (2011) *The case for change – reforming water abstraction management in England*. Available from: <http://publications.environment-agency.gov.uk/PDF/GEHO1111BVEQ-E-E.pdf>


Key questions (steps)	Sub-questions	Answer	Traffic Light
		values were not as well understood. However, it is now recognisable as a subsidy with clear detrimental impacts on water ecosystems.	
	What is the point of impact of the incentive (conditionality)?	The subsidy is on the price per unit cost of water which does not reflect the relative scarcity, abundance of the water available, or the environmental pressures on the water resource (i.e the unit cost of water abstracted is artificially low).	
	What is the duration of the incentive?	Specific licences vary in terms of their duration. Licences can be granted for up to 24 years. Most licenses have a 12 year duration. All new licences (since 2001) have an expiry date. Approximately 21% of licences in England and Wales now have time limits. The remaining 79% do not, i.e. were granted as of 'right' so that abstractors are able to hold their licence in perpetuity. Licences currently held "in perpetuity" are likely to become time limited before 2027 which means that the vast majority of licenses will be valid for 12 years with a review of the long term sustainability of those abstractions being undertaken in 6 yearly cycles. ⁶	
	Does the incentive provide for long term structural impacts?	<p>Yes – in the sense that if the abstraction of water from rivers and groundwater is unsustainable, these can result in long term or irreversible impacts on ecosystems.</p> <p>Licences for abstraction and impounding can also be linked to construction projects (dams, reservoirs, power stations, etc) which can have long term structural impacts on the environment given the longevity of the infrastructure that is built. These effects are especially likely in the case of impounding licences which are required before the construction of any structure such as a weir or dam, and for the continued operation of that structure.</p>	
3) Does the incentive lead to potential significant negative impact on biodiversity?	Does the incentive have a direct or indirect impact on biodiversity?	The subsidy has a direct influence on biodiversity by influencing the condition of aquatic habitats on which flora and fauna depend. For instance, licences have been issued in the past which have risks of causing a harmful effect on the environment due to too much water being taken from rivers and water bodies, which can be harmful to some nature conservation sites and the ecological health of some catchments. River flows are a critical	


⁶ See: <http://www.rtpi.org.uk/download/6411/Water-Abstraction-and-Impounding-Licences.pdf>


Key questions (steps)	Sub-questions	Answer	Traffic Light
		<p>factor for the creation and maintenance of river and floodplain morphology, and associated biodiversity and ecosystem services. As water flows are reduced, the health of the water environment deteriorates because there is less water to dilute pollution and support fish and their migration, and other wildlife. Maintaining water levels are also crucial for sustaining wetlands. Evidence has shown that artificially low flow regimes caused by over-abstraction have had a damaging impact on some fish, invertebrates, plant populations as well as river morphology.</p> <p>To meet the Habitats Directive requirements at Natura 2000 sites, the EA estimates water abstraction must be reduced by ~250 million litres a day (Ml/day)</p>	
	Does the incentive have also other wider impacts on the environment?	Yes, in terms of water pollution and degradation of water bodies (e.g. water retention, soil quality and soil erosion, nutrient content).	
	YES/NO (or brief) answers	<ul style="list-style-type: none"> ▪ Is there a large change in biodiversity/ecosystems conditions due to the production/consumption patterns of the economic activity? <i>Yes- only a quarter of rivers and lakes in the UK are fully functioning ecosystems, in part due to over abstraction (and water pollution more generally).</i> ▪ Do the effects extend over a large area? <i>Yes – affected water catchments extend over a significant area</i> ▪ Do the effects have implications at local, national, European or global level? <i>Local, national</i> ▪ Is there any trans-frontier impact? <i>No</i> ▪ Are many people affected? <i>Yes, in so far as people rely on a sustainable water source</i> ▪ Does it lead to significant or potentially excessive resource use, including valuable or scarce biodiversity features or resources? <i>Yes</i> ▪ Are environmental/biodiversity standards breached? <i>Yes –it can affect the condition of SSSIs and N2K sites</i> ▪ Are protected sites, areas, features affected? <i>Yes</i> ▪ Is there a high probability of the above effects occurring? <i>It depends on the characteristics / conditions of the licence that has been granted (e.g. the area the licence covered and the affected habitats, volume of water abstracted)</i> ▪ Will the effect continue for a long time? <i>Yes</i> 	



Key questions (steps)	Sub-questions	Answer	Traffic Light
		<ul style="list-style-type: none"> ▪ Will the effect be permanent rather than temporary? <i>There is a likelihood that the effects could be permanent, or at least very hard to reverse , although some water ecosystems may be quite resilient</i> ▪ Will the impact be continuous rather than intermittent? <i>Intermittent in the sense that significant impacts may only occur at lower flows when ecosystems are vulnerable and only be substantial if continued over some time.</i> ▪ If it is intermittent will it be frequent rather than rare? <i>Frequent</i> ▪ Will the impact be irreversible? <i>Potentially. In some cases over-abstraction has been shown to cause almost irreversible ecosystem damage.</i>⁷ ▪ Will it be difficult to avoid, or reduce or repair or compensate for the effect? <i>In some cases, yes</i> 	
4) Are these potential biodiversity impacts limited by existing 'policy filters'?	Are there 'policy' filters that mitigate the environmental effects of an incentive?	<p>Mechanisms are in place for changing abstraction licenses in order to reduce the volumes licensed for abstraction. There is also a requirement for compensation for any losses caused, and a facility for the Environment Agency to revoke and amend abstraction licences causing serious environmental damage after 2012 when it comes in force.</p> <p>The Environment Agency has also set up the Restoring Sustainable Abstraction Programme, which aims to identify, investigate and address sites which may be at risk from over abstraction and which may be causing environmental harm. Investigations may lead to changing abstraction licenses. License holders are encouraged to voluntarily change the license, a process which is straightforward and quick. If the license holder objects, they may be eligible for compensation. The time and cost associated with these changes has a significant impact on abstractors and regulators. The programme has seen some license holders voluntarily change their conditions (e.g. Portsmouth Water), although to date there have been few cases where this has happened. However, the regulatory process for amending or revoking an abstraction licence is very slow and challenging, and very few abstraction licences have been amended. It has not been possible to identify any cases where licences have been revoked, although some licences have been varied under this process. Moreover, in order to revoke a licence, the EA would have to pay the abstractor compensation. However, from July 2012 onwards it will be possible to amend or remove a</p>	


⁷ <http://www.parliament.uk/documents/post/postpn259.pdf>


Key questions (steps)	Sub-questions	Answer	Traffic Light
		<p>licence without compensation if the licence is causing serious damage to the environment.</p> <p>It appears therefore the policy filters that do exist are inefficient in addressing the environmental impacts arising from over-abstraction, and it is unclear to what extent they are sufficiently addressing the full range of effects on the environment.</p>	
	What other incentives/ subsidies are provided to the sector/economic activity?	Subsidies affecting the activities / sectors which rely on abstracted water as an input will also have an impact on the level of water abstracted (e.g. CAP subsidies to farmers)	
	Does the taxation regime counterbalance the impacts of the incentive / subsidy?	None that could be identified within the limitations of this study – more in depth research would be necessary	
Phase 2: Potential for reform			
5) Does the incentive fulfill its objectives?	What are the objectives of the incentive?	The current system was designed in 1960 and aimed to manage competing demands for water. The aims or objectives of the system, as it was originally designed, was not to protect the environment. Although the system has evolved to protect the environment, the charging system is not aimed at protecting the environment.	
	Who are the intended recipients of the incentive?	Abstractors (farmers, land owners, power suppliers, water companies, industrial users etc.), i.e. those who require the use of water from rivers, groundwater or other water bodies.	
	Are the incentive's objectives still justified in relation to the needs?	No. Although the use of water by abstractors is still justifiable, as is the need to manage competing human demands for water, the current system and the fact that it continues to under-price the water resource is no longer justified nor fit for purpose. The system is no longer adequate for current or future use, especially given the challenges posed by future climate change and growing demand which will place increasing pressure on ecosystems which are already being negatively affected.	

Key questions (steps)	Sub-questions	Answer	Traffic Light	
	<p>Has the incentive been in place for a long time and/or lacks an in-built review process?</p>	<p>The system has been in place since 1960. It lacks an in-built review process, but the legal framework changed in 2003 with the introduction of the Water Act which introduced new legal requirements and amended the previous system. Some of these suggested regulatory changes have already been put in place, whilst others are still to be introduced.</p> <p>Most recently, the 2011 Water White Paper announced a commitment to change the water abstraction regime by the mid to late 2020s.</p> <p>The government is therefore currently working on reforming the system as a whole, but is also looking to make short term changes designed to increase the efficiency of the current framework until long term changes are possible.</p>		
<p>6) Does the incentive lead to any social and/or economic issue?</p>	<p>What are the unintended economic impacts of the incentive?</p>	<p>Characteristics of the system lead to several unintended economic impacts and market failures / distortion. For instance, the system creates a situation in which the true cost of water is not adequately reflected (e.g. at present water abstraction charges are <4% of a customer's water and sewerage bill). Moreover, there is little incentive for abstractors to respond to the abundance / scarcity of water availability (charges are not linked to water volumes abstracted and therefore fail to reflect water availability or the value that users place on it). There is also little trade in licences which creates inefficiencies such that licences aren't allocated where the need is greatest (abstractors who do not need to take their full water allocation do not hand back or sell-on licences as their needs change).</p>		
	<p>What are the unintended social impacts of the incentive?</p>	<p>There are unlikely to be a significant social impacts (e.g. in terms of inequality, employment, health etc.). However, abstraction infrastructure (e.g. pipelines) may impact on coastal amenities for leisure and recreation including sailing.</p>		
	<p>Who are the winners and who are the losers?</p>	<p>Winners are water users – including farmers, industrial companies, water companies. Losers are the water environment and those who value it.</p>		
	<p>Criteria matrix Key: negative impacts (--- high; --</p>	<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%;">Indicator</td> <td style="width: 50%;">Degree of expected impact</td> </tr> </table>		Indicator
Indicator	Degree of expected impact			





Key questions (steps)	Sub-questions	Answer		Traffic Light																								
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7) Are there more biodiversity benign alternatives hindered by the incentive?	Are there alternative technologies, products, services, systems or modes of productions that could replace those supported by the incentive?	Yes, in terms of a more benign system which encourages more sustainable water abstraction through the right signals and opportunities for review. This would encourage more water efficient measures, water saving technologies, change to less water intensive cropping patterns etc There are however, limits as to how far this is possible given that many processes require a large amount of water and in some cases there is no alternative aside from stopping the process.																										
	How do the	If the system were to be reformed with a greater focus on the need for sustainable																										

Key questions (steps)	Sub-questions	Answer	Traffic Light
	environmental/biodiversity impacts of these alternatives compare with those of the incentivised / subsidised ones?	abstraction and which ensured that the environmental impacts of abstraction are taken into account (systematically and over time), then the adverse impacts on biodiversity and ecosystems could be significantly reduced.	
	Is the implementation of these alternatives hampered by the incentive under scrutiny?	Yes, in that the system has been in place for several decades and the opportunities for review are therefore limited and particularly challenging. Low pricing of water discourages uptake of more sustainable water management practices.	
	What is the likelihood of these alternatives replacing the previously incentivised / subsidised ones?	Very high, but only over a longer time horizon (i.e. mid to late 2020s).	
8) Are there pressures for the incentive's reform/removal?	Are there existing calls for the incentive to be removed / reformed?	Yes – see above (2008 Cave Review on competition and innovation in water markets in England and Wales; 2011 Water White Paper; 2011 HM Government Paper on Water for Life)	
Phase 3: Reform scenarios			
9) Is there a suitable reform option(s) and what could it entail?	What alternatives exist for meeting the incentive's objectives (if still valid)?	A reformed system which is more responsive, flexible and sustainable. Regulatory changes have already been introduced to move towards this goal (through the Water Act 2003), although some are yet to be introduced. More extensive changes are foreseen following commitments made in the 2011 Water White Paper. It announced a commitment to change the water abstraction regime to one that is more resilient to the challenges of climate change and population growth and that better protects the environment. The White Paper recognised that too much water is being abstracted in some catchments and that	

Key questions (steps)	Sub-questions	Answer	Traffic Light
		<p>abstraction charges do not send the right price signals. The Paper anticipates a new regime to be in place in the mid to late 2020s, with the consultation for reform to run over the next 2 to 3 years. It is hoped that the new system will better reflect the value of water, its relative scarcity and the value of ecosystem services to ensure that water ecosystems are protected. Licenses will be designed to vary the volume available for abstraction according to overall water availability. There is also no intention to fund compensation for any losses following a change to the license - this will not be legally justified since changes will be designed to protect the environment.</p>	
	<p>Should the incentive's objective no longer be valid, could the subsidy be removed?</p>	<p>Although the system would have to remain in place, i.e. a system which aims to manage and regulate water supply, the implicit subsidy that is built into the system's design could and should be removed with appropriate changes to design of the water abstraction regime, so that the system correctly values water resources and sends the correct signals / incentives to abstractors to sustainably manage their water use.</p>	
<p>10) What could its expected costs and benefits be?</p>	<p>What are the environmental impacts and, more specifically, the related direct and indirect effects on biodiversity, associated with each scenario?</p>	<p>See (7) - a greater focus on the need for sustainable abstraction and ensuring that the environmental impacts of abstraction are taken into account (systematically and over time), could significantly reduce the adverse impacts on biodiversity and ecosystems.</p>	
<p>What are the economic impacts associated with each scenario?</p>	<p>There is potential cost to businesses and farmers if they need to change their productive processes if abstraction has to be reduced or eliminated – cost of finding another source for water or having to change its activities. The scale of this impact is difficult to estimate and would depend on various factors e.g. type of firm, nature of industry, role of water in production processes, nature of consumer market etc.</p> <p>The removal of the requirement for abstractors to be paid compensation for any losses if abstraction licences are amended or revoked could also have some economic impacts on businesses (after 2012, compensation will no longer be payable for licences without expiry</p>		

Key questions (steps)	Sub-questions	Answer	Traffic Light
		<p>dates where the abstraction may be causing environmental damage). The EA has estimated that on average £1.5 million will be payable for each MI/day revoked, resulting in an estimated £352 million payable for alterations to public water supply abstractions under the Habitats Directive.⁸</p> <p>However, compensation would also have other consequences, in that generating the required amount needed for compensation could increase the cost of water abstraction.</p> <p>If public water supply is reduced, then there are also potential consequences to consider in that these losses would need to be replaced by new supplies or reductions in water demand. This could have economic impacts through the fact that, for instance, prices for customers in terms of public water supply are set to fund supply and demand management options and would therefore be affected by measures taken to offset any loss in water supply.</p> <p>Potential increases to water charges have implications for all water users, including industrial and agricultural abstractors and users of public water supplies.</p>	
	What are the social impacts associated with each scenario?	There is a risk that measures which lead to an increase in water prices could have regressive impacts on low income consumers. However, there are also likely to socio-economic gains related to environmental improvements.	
	Are flanking measures necessary?	Not that can be identified within the scope of this study	
11) Are there obstacles to the incentive's reform/removal?	How politically important/sensitive is the initiative?	Fairly sensitive – abstractors are unlikely to want to give up what they perceive to be their property rights, especially as these may have been in place for decades. The removal of the requirement to pay compensation for loss of abstraction rights is a particularly contentious issue. However, the sensitivity relates to the established rights of a relatively small number of water users rather than wider political interests.	

⁸ <http://www.parliament.uk/documents/post/postpn259.pdf>




Key questions (steps)	Sub-questions	Answer	Traffic Light
	Have there been attempts to reform the incentive in the past and why have they failed?	Yes – current efforts to voluntary reform / amend some abstraction licences are proving inefficient and their effects are unclear. In the past, uncertainty over the impact of abstraction on the environment has been a barrier to altering abstractions. The Habitats Directive changed this approach by switching the burden of scientific proof from the need to show ‘impact’ to the need to show ‘no significant impact’ ⁹	
12) Is the reform understandable, practical and enforceable?	Is it understandable to the public/ media/ policy makers (communication)?	The detailed and technical aspects are less likely to be easy to communicate, but the broader messages should be easy to understand.	
	Is it practical to implement (feasibility)?	Will depend on the final details of the system reform. There is likely to be some opposition which will make implementation more challenging.	
	Is it enforceable?	Yes – the enabling framework already exists (the Environment Agency and its powers under the Water Resources Act 1991 and the powers inferred by the Environment Act 1995). There, however, may be issues around available resources for enforcement.	
Phase 4: Opportunities for action			
13) Is there a window of opportunity for reform? (repeated)		Yes – currently, driven by the commitment in the 2011 Water White Paper to change the water abstraction regime by the mid to late 2020s.	
14) Is there a potential policy champion for reform?		Yes – e.g. the Environment Agency, Defra, environmental organisations (WWF, RSPB)	
15) Is there public/ political support to reform?	Is this already in place and if not can it be catalyzed in the reform time period? From which sources is there	Yes – already in place. Support from across government departments and HM Government and from environmental organisations. There may be some opposition from industry / abstractors but this has yet to be strongly voiced.	










⁹ <http://www.parliament.uk/documents/post/postpn259.pdf>

Key questions (steps)	Sub-questions	Answer	Traffic Light
	(potential) support?		

10.2 CASE STUDY 2: Eligibility Criteria for CAP Direct Payments

Table A1.3 Summary Table

Key questions (steps)	Traffic Light	
Phase 0: Identification of threats to biodiversity and potentially harmful incentives		
16) Is there a threat to biodiversity?		Yes, significant threat
Phase 1: Screening of incentive		
17) Is there a perverse incentive / subsidy?		Yes, although relatively small
18) Does the incentive lead to potential significant negative impact on biodiversity?		Some potential impacts

Key questions (steps)	Traffic Light	
19) Are these potential biodiversity impacts limited by existing 'policy filters'?		Some mitigation, but not sufficient to fully offset the subsidy impact(s)
Therefore: Is there an incentive that is harmful for biodiversity?		Yes although limited effect
Phase 2: Potential for reform		
20) Does the incentive fulfill its objectives?		Partially - It is the interpretation and implementation that is the issue
21) Does the incentive leads to any social and/or economic issue?		Some issues
22) Are there more biodiversity benign alternatives hindered by the incentive ?		Yes, other alternatives exists and are available to replace the subsidised option
23) Are there pressures for the incentive's reform/removal?		Some pressures suggesting a need for reform
Therefore: should the incentive remain in place or be reformed/removed?		Reform should be considered in more detail
Phase 3: Reform scenarios		
24) Is there a suitable reform option(s) and what could it entail?		Yes
25) What could its expected costs and benefits be?		Benefits outweigh costs











Key questions (steps)	Traffic Light	
26) Are there obstacles to the incentive's reform/removal?		Some obstacles to reform, suggesting that reform may be encouraged but with caution
27) Is the reform understandable, practical and enforceable?		Yes
Therefore: is the reform option advisable?		Yes, although obstacles may have to be further assessed and measures taken to address them
Phase 4: Opportunities for action		
28) Is there a window of opportunity for reform?		Yes
29) Is there a potential policy champion for reform?		Unclear
30) Is there public/ political support to reform?		Yes
Therefore: is reform timely and should it be prioritised? Is it worth initiating the reform process?		Yes, reform is relatively easy to implement and would resolve potentially significant local issues with regards to definition and implementation

Table A1.4 Detailed responses

Key questions (steps)	Sub-questions	Answers	Traffic Light
Phase 0: Screening of impacts / sectors			



Key questions (steps)	Sub-questions	Answers	Traffic Light
16) Is there a threat to biodiversity?	What are the key threats to biodiversity that should be addressed?	There are many threats to biodiversity in the UK. These include continuing declines in many habitats and species, including protected sites, fragmentation of habitats etc and are well documented in the literature. See for example, the 2010 progress report relating to progress with implementation of the UK Biodiversity Strategy and Biodiversity 2020: A Strategy for England's Wildlife and ecosystem services, amongst others.	
	What are the economic activities\ sectors causing or exacerbating these threats?	A whole range of pressures, many associated with different economic activities affect biodiversity. Of relevance to this case study is the farming sector, which continues to exert significant pressure on biodiversity in the UK. For the purposes of this case study we consider the impact of excluding farmers from receipt of CAP Pillar 1 Direct Payments (Single Payment Scheme) can have on biodiversity	
Phase 1: Screening of subsidy			
17) Is there a subsidy / perverse incentive?	What is the nature and size of the subsidy / incentive?	<p>Under the SPS the eligible hectare has to be used predominantly for agricultural activities, even if non-agricultural activities (for example management for nature conservation) take place, and keeping the land in Good Agricultural and Environmental Condition (GAEC) is understood as an eligible agricultural activity if other agricultural activities have ceased¹⁰. Particular problems in semi-natural habitats have been caused by differences in interpretation of the current definition of eligible area/parcel, including the technical advice provided by the Commission regarding the eligibility of hedges, ditches and other semi-natural features such as trees. The issues that arise in the UK under the SPS revolve around the question as to whether habitats, such as areas of heather or landscape features such as hedges, shrubs, trees, ponds, etc can be counted as eligible.</p> <p>CAP Pillar 1 payments provide per hectare payments to farmers as income support. Values varies between England, Scotland, Northern Ireland and Wales, due to the different parameters under which the value of Single Farm Payments are established annually – in Scotland, Wales and Northern Ireland, per hectare payments are still largely based on historic receipts. In England, where payments are no longer related to historic production,</p>	

¹⁰ Article 34(2)(a) and 2(c) of Regulation 73/2009 and Article 2(a) of Regulation 795/2004.


Key questions (steps)	Sub-questions	Answers	Traffic Light
		<p>payments are as follows for 2011 claim year:</p> <p>Non SDA: €289.94/ha</p> <p>SDA: €233.95/ha</p> <p>Moorland SDA: €40.82/ha</p>	
	What is the point of impact of the incentive (conditionality)?	The impact relates to the criteria setting out what land is eligible for the Single Payment Scheme and the fact that there continue to be grey areas, where the potential ineligibility of certain semi-natural habitats or features has led to farmers erring on the side of caution and removing them in some instances to avoid the risk of payments being withheld or clawed back at a later date.	
	What is the duration of the incentive?	The SPS is paid on an annual basis for all eligible hectares, subject to receipt of a claim from the farmer. However, the system of income support payments to farmers is ongoing, subject to reviews/reforms, usually every 7 years (recently more frequently). The current system is currently undergoing review, with new support schemes to be introduced from 2014.	
	Does the incentive provide for long term structural impacts?	The incentive relates to the inclusion/exclusion of eligibility of certain habitats for the SPS. Structural impacts that might be relevant include the removal or cutting back of landscape features (such as hedgerows), the removal of scrub or other semi-natural habitats.	
18) Does the incentive lead to potential significant negative impact on biodiversity?	Does the incentive have a direct or indirect impact on biodiversity?	<p>Direct and Indirect – sometimes it is the fear of penalties as a result of enforcement where there are grey areas as to what exactly is eligible and ineligible that causes the removal of the features/habitat rather than the rules themselves.</p> <p>For example, the audit findings on ‘ineligible’ landscape features or trees¹¹ led to cases of farmers being penalised and land being excluded from direct payments in Northern Ireland.</p>	


¹¹Article 21 (1) of Regulation 73/2009 specifies that when ‘a farmer does not comply with the eligibility conditions... the payment or part of payment granted ... shall be subject to the reductions and exclusions’. Article 21 (2) states that reductions will correspond to ‘severity, extent, permanence and repetition of the non-compliance found and may go as far as total exclusion from one or several aid schemes for one or more calendar years’.



Key questions (steps)	Sub-questions	Answers	Traffic Light
		<p>In Northern Ireland, after the findings of the EC audit, farmers pursued the rules on vegetation (heather to be no higher than 50 cm) and landscape features (width of hedges) in a more stringent way because they were required to do so by the imposition of a stricter national standard, and in Scotland, farmers removed semi-natural vegetation on their own initiative, in anticipation of risks of penalisation.</p>	
	<p>Does the incentive have also other wider impacts on the environment?</p>	<p>Yes, if semi-natural habitats are damaged, scrub or other vegetation removed, then this could release carbon to the atmosphere, plus could increase risk of water erosion and hence water quality.</p>	
	<p>YES/NO (or brief) answers</p>	<ul style="list-style-type: none"> ▪ Is there a large change in biodiversity/ecosystems conditions due to the production/consumption patterns of the economic activity? <i>The concerns about lack of eligibility lead to the damage to biodiversity</i> ▪ Do the effects extend over a large area? <i>Variable. Mostly anecdotal examples of damage and by no means happening in all cases</i> ▪ Do the effects have implications at local, national, European or global level? <i>Local mainly – although some habitats affected are important nationally</i> ▪ Is there any trans-frontier impact? <i>No</i> ▪ Are many people affected? <i>Potentially – evidence unavailable to say how many farmers take action as a result of ineligibility concerns</i> ▪ Does it lead to significant or potentially excessive resource use, including valuable or scarce biodiversity features or resources? <i>N/A</i> ▪ Are environmental/biodiversity standards breached? <i>In some cases, yes (i.e. burning of scrub in Scotland resulted in damage to birds nests, protected under Birds Directive. Also conflicts arise with the pursuit of biodiversity objectives, e.g. BAP targets as well as with the priorities of agri-environment schemes (also funded under the CAP).</i> ▪ Are protected sites, areas, features affected? <i>Yes, potentially</i> ▪ Is there a high probability of the above effects occurring? <i>Yes, if issue is not resolved</i> ▪ Will the effect continue for a long time? <i>Yes</i> ▪ Will the effect be permanent rather than temporary? <i>Temporary if rules are changed, features could be replaced, habitats allowed to be reinstated – but would be over long time span.</i> ▪ Will the impact be continuous rather than intermittent? <i>Continuous</i> ▪ If it is intermittent will it be frequent rather than rare? <i>N/A</i> 	




Key questions (steps)	Sub-questions	Answers	Traffic Light
		<ul style="list-style-type: none"> ▪ Will the impact be irreversible? <i>No, but see above re permanence</i> ▪ Will it be difficult to avoid, or reduce or repair or compensate for the effect? <i>Sorting out the eligibility rules would avoid the problem altogether.</i> 	
19) Are these potential biodiversity impacts limited by existing 'policy filters'?	Are there 'policy' filters that mitigate the environmental effects of an incentive?	<p>As mentioned above, the damage can be driven not necessarily by 'ineligibility' of certain features/habitats per se, but as a result of a fear of penalties if areas are claimed on and subsequently deemed ineligible as a result of enforcement or audit, given the fact that there is often some margin of error in calculating 'ineligible' and 'eligible' areas, maps do not always tally, EU Auditors may be working to different/stricter interpretations of the rules to national enforcement agencies etc.</p> <p>Detailed guidance documents that spell out precisely what is eligible and not eligible can help here. These are provided in all UK regions and updated regularly. The 2012 updated handbook in England, for example, makes the rules regarding the eligibility of scrub much simpler to interpret and implement by removing the '50% rule' and making any areas of scrub that are able to be grazed to be eligible for the SPS.</p>	
	What other incentives/subsidies are provided to the sector/economic activity?	A whole range of other payments/support is provided to the agricultural sector, including incentives for environmental management, and grants to improve competitiveness under Pillar 2 (Rural Development Policy). In addition, certain market support measures continue, for the time being, including milk quota and support for sugar.	
	Does the taxation regime counterbalance the impacts of the incentive / subsidy?	No	
Phase 2: Potential for reform			
20) Does the incentive fulfill its objectives?	What are the objectives of the incentive?	The purpose of the eligibility criteria is to ensure that only areas of land that are used for agricultural activity or kept in Good Agricultural and Environmental Condition receive payments under the CAP. Eligibility is set out under Article 34 of Council Regulation 73/2009 as follows:	




Key questions (steps)	Sub-questions	Answers	Traffic Light
		<p>Activation of payment entitlements per eligible hectare:</p> <p>1. Support under the single payment scheme shall be granted to farmers upon activation of a payment entitlement per eligible hectare. Activated payment entitlements shall give a right to the payment of the amounts fixed therein.</p> <p>2. For the purposes of this Title, 'eligible hectare' shall mean:</p> <p>(a) any agricultural area of the holding, and any area planted with short rotation coppice (CN code ex 0602 90 41) that is used for an agricultural activity or, where the area is used as well for non-agricultural activities, predominantly used for agricultural activities; and</p> <p>(b) any area which gave a right to payments under the single payment scheme or the single area payment scheme in 2008 and which:</p> <p>(i) no longer complies with the definition of 'eligible' as a result of the implementation of Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (1), Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (2) and Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (3); or</p> <p>(ii) for the duration of the relevant commitment of the individual farmer, is afforested pursuant to Article 31 of Council Regulation (EC) No 1257/1999 of 17 May 1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) (4) or to Article 43 of Regulation (EC) No 1698/2005 or under a national scheme the conditions of which comply with Article 43(1), (2) and (3) of that Regulation; or</p> <p>(iii) for the duration of the relevant commitment of the individual farmer, is set aside pursuant to Articles 22, 23 and 24 of Regulation (EC) No 1257/1999 or to Article 39 of Regulation (EC) No 1698/2005.</p>	

Key questions (steps)	Sub-questions	Answers	Traffic Light			
		The Commission, in accordance with the procedure referred to in Article 141(2), shall lay down detailed rules on the use of eligible hectares for non-agricultural activities.				
	Who are the intended recipients of the incentive?	Active farmers as defined under Council Regulation 73/2009				
	Are the incentive's objectives still justified in relation to the needs?	Yes – in relation to eligibility criteria. It is the interpretation and implementation of the eligibility criteria at the national level (and also by EU auditors) that causes the problems.				
	Has the incentive been in place for a long time and/or lacks an in-built review process?	The SPS, with these eligibility criteria has been in place since 2005 and was last reviewed as part of the CAP Health Check in 2008. It is currently under review, with a revised CAP scheduled to come into operation in January 2014.				
21) Does the incentive lead to any social and/or economic issue?	What are the unintended economic impacts of the incentive?	The fear of land managers is that they would forfeit their SPS payment for a proportion of their land if they claimed for areas that were subsequently deemed to be ineligible. The economic impact will vary on a farm to farm basis.				
	What are the unintended social impacts of the incentive?	In extreme cases, this has the potential to make the difference between a farm that is profitable or unprofitable and therefore could lead to farms going out of business – with knock on social impacts. This is theoretical, however – there are no examples that could be identified where this has in fact been the case				
	Who are the winners and who are the losers?	N/A in this case				
	Criteria matrix Key: negative impacts (--- high; -- medium; - low); positive impacts (+++ high; ++ medium;	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Indicator</td> <td style="width: 50%; text-align: center;">Degree of expected impact</td> </tr> <tr> <td></td> <td style="text-align: center;">Of issues surrounding eligibility/ineligibility of</td> </tr> </table>		Indicator	Degree of expected impact	
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22) Are there more biodiversity benign alternatives hindered by the incentive?	Are there alternative technologies, products, services, systems or modes of productions that could replace those supported by the incentive?	The issue at stake here is the eligibility criteria for a subsidy that in itself is not harmful to biodiversity directly, but is inefficient and would benefit from reform to be replaced by a policy that is focused directly on the delivery of clearly defined public goods, such as biodiversity.																												


Key questions (steps)	Sub-questions	Answers	Traffic Light
	How do the environmental/biodiversity impacts of these alternatives compare with those of the incentivised / subsidised ones?	If the CAP were to be reformed with a greater focus on public goods delivery then the benefits for biodiversity could be significant, particularly if measures were able to be designed appropriately to allow actions to be targeted in ways that deliver the intended outcomes and if sufficient environmental safeguards were put in place.	
	Is the implementation of these alternatives hampered by the incentive under scrutiny?	<p>Yes and no.</p> <p>Yes –if the confusion around eligibility is not sorted out then some of the habitats and features that would be the focus of a more public goods focused CAP may have disappeared</p> <p>No – the CAP reform debate and likelihood of reform is a much bigger strategic, political debate of which this issue on eligibility is one small technical detail.</p>	
	What is the likelihood of these alternatives replacing the previously incentivised / subsidised ones?	The environment is a key objective of the CAP Reform process, with the aim to integrate the delivering of environmental public goods more centrally into the CAP. The extent to which this might happen in practice is the subject of much debate.	
23) Are there pressures for the incentive's reform/removal?	Are there existing calls for the incentive to be removed / reformed?	Yes – from both environmental NGOs and the farming stakeholders.	
Phase 3: Reform scenarios			
24) Is there a suitable reform option(s) and what could it entail?	What alternatives exist for meeting the incentive's objectives (if still valid)?	there would be value in providing greater clarity in the CAP regulation and technical guidance on eligibility criteria at the EU level and institutional capacity at all levels should be improved to avoid misinterpretations that lead to environmentally damaging implementation in the future	
	Should the incentive's objective	Eligibility criteria will remain important as long as the SPS remains to ensure that that public	

Key questions (steps)	Sub-questions	Answers	Traffic Light
	no longer be valid, could the subsidy be removed?	money via the CAP is not misspent	
25) What could its expected costs and benefits be?	What are the environmental impacts and, more specifically, the related direct and indirect effects on biodiversity, associated with each scenario?	Cessation of environmentally damaging activities in order to receive SPS payments No data possible on costs	
	What are the economic impacts associated with each scenario?	Farmers would not be disadvantaged from receiving SPS payments as a result of maintaining environmentally valuable habitats/features	
	What are the social impacts associated with each scenario?	Continuation of farming if this were to be at risk	
	Are flanking measures necessary?	No	
26) Are there obstacles to the incentive's reform/removal?	How politically important/sensitive is the initiative?	Fairly sensitive. Particularly as the issue of eligibility it relates to payments to farmers and potential penalties not just on farmers as a result of national enforcement, but on national governments as a result of EU audit.	
	Have there been attempts to reform the incentive in the past and why have they failed?	These issues are discussed regularly and many issues have been resolved over time. Much rests on interpretation of EU regulation and guidelines and so there are always going to be grey areas unless rules can be interpreted less stringently.	
27) Is the reform understandable, practical and enforceable?	Is it understandable to the public/ media/ policy makers (communication)?	Rather a technical issue to explain all the minutiae of the issues accurately – but bigger picture message not difficult to communicate	
	Is it practical to implement (feasibility)?	Yes	

Key questions (steps)	Sub-questions	Answers	Traffic Light
	Is it enforceable?	Yes	
Phase 4: Opportunities for action			
28) Is there a window of opportunity for reform?		Yes – current negotiations for CAP Reform for 2014-2020	
29) Is there a potential policy champion for reform?		Unclear	
30) Is there public/political support to reform?	Is this already in place and if not can it be catalyzed in the reform time period? From which sources is there (potential) support?	Yes, from environmental NGOs and farming sector	

10.3 CASE STUDY 3: Incentives for Wind Energy in the UK

Table A1.5 Summary table

Key questions (steps)	Traffic Light	
Phase 0: Identification of threats to biodiversity and potentially harmful incentives		
31) Is there a threat to biodiversity?		Yes, significant threat
Phase 1: Screening of incentive		








Key questions (steps)	Traffic Light	
32) Is there a perverse incentive / subsidy?		Yes, substantial subsidy / incentive
33) Does the incentive lead to potential significant negative impact on biodiversity?		Significant potential impacts
34) Are these potential biodiversity impacts limited by existing 'policy filters'?		Yes, so the overall impact of the policy should be limited or very limited if planning controls are properly implemented
Therefore: Is there an incentive that is harmful for biodiversity?		No
NO NEED TO PROGRESS TO THE NEXT STAGE		


Table A1.6 Detailed table

Key questions (steps)	Sub-questions	Answers	Traffic Light
Phase 0: Identification of threats to biodiversity and potentially harmful incentives			
31) Is there a threat to biodiversity?	What are the key threats to biodiversity that should be addressed?	There are many threats to biodiversity in the UK. These include continuing declines in many habitats and species, including protected sites, fragmentation of habitats etc and are well documented in the literature. See for example, the 2010 progress report relating to progress with implementation of the UK Biodiversity Strategy and Biodiversity 2020: A	

Key questions (steps)	Sub-questions	Answers	Traffic Light
	<p>What are the economic activities\ sectors causing or exacerbating these threats?</p>	<p>Strategy for England’s Wildlife and ecosystem services, amongst others.</p> <p>Subsidies are also used to encourage the development and use of renewable energy sources to fight global warming and achieve long-term energy security. However, these may have other negative impacts on biodiversity. For instance, hydroelectric dams can result in the loss of wildlife habitat and reduce biodiversity; the components used in solar cells are often hazardous to the environment (e.g. manufacture of solar cells requires the use of arsenic and cadmium) and have to be disposed of relatively frequently; solar thermal plants require cooling water which can have negative impacts where there water is in short supply; and wind farms and utility-scale solar power plants can have significant biodiversity impacts, especially if inappropriately located.</p>	
Phase 1: Screening of incentives			
<p>32) Is there a subsidy / perverse incentive?</p>	<p>What is the nature and size of the subsidy / incentive?</p>	<p>Wind energy in the UK is subsidised mainly through the Renewables Obligation. This requires British electricity suppliers to provide a proportion of their sales from renewable sources (including wind energy) or pay a penalty fee. Suppliers have to evidence that they are meeting their obligation by presenting Renewable Obligation Certificates (ROCs). These are received for each MWh of electricity purchased. ROCs are banded for different technologies; until recently, onshore wind received 1 ROC per MWh and offshore wind received 1.5 ROC per MWh. In 2009, the Renewables Obligation Banding Review increased the allocation for offshore wind to 2 ROCs to reflect the higher costs of generation. However, a more recent review presented plans to reduce support to onshore and offshore wind. Onshore wind would then be downgraded from 1 ROC per MWh to 0.9 ROC in 2013, while support for offshore wind would be reduced from 2 ROCs to 1.9 ROCs in 2015, with another reduction to follow in 2016 (to 1.8 ROCs). Research has indicated that, in the case of onshore wind, this could reduce deployment by 2017 to 10.4 GW from 12 GW.</p> <p>Wind energy also benefits from capital subsidies in the case of some wind power projects, through financial support under various programmes (e.g. the European Regional Development Fund, Clear Skies Scheme). However the scale of support through these schemes is unclear. The 2011 Renewable Energy Roadmap however does state that £30</p>	

Key questions (steps)	Sub-questions	Answers	Traffic Light
		<p>million of direct Government support will be provided for offshore wind cost reduction over the next 4 years.</p> <p>Small wind energy projects (specifically those with a capacity of up to 5MW) are also supported through a Feed in Tariff (FIT), which guarantees payments for electricity generated from small scale renewable electricity systems (linking a return on investment of between 5-8 per cent). An extra tariff (3 pence / kWh) is paid for every unit that is exported to the national grid.</p>	
	What is the point of impact of the incentive (conditionality)?	Wind energy in the UK is subsidised mainly through the Renewables Obligation. This requires British electricity suppliers to provide a proportion of their sales from renewable sources (including wind energy) or pay a penalty fee. The subsidy is therefore conditional on renewable energy output specifically electricity generated through renewable technology.	
	What is the duration of the incentive?	The Renewable Obligation scheme has been running since 2002, and is expected to continue until 2027. FITs came into force in 2010 and are set for 20 or 25 years.	
	Does the incentive provide for long term structural impacts?	Given the length of time over which the Renewable Obligation is in place, the fact that it supports investment in infrastructure with a long-life span, and its success to date, the subsidy is very likely to have long term structural impacts. Given the small scale of the projects being supported, the FIT is unlikely to result in significant structural change.	
33) Does the incentive lead to potential significant negative impact on biodiversity?	Does the incentive have a direct or indirect impact on biodiversity?	Wind energy developments have the potential to negatively impact on biodiversity, and the wider environment, depending on their location and other characteristics. The construction of the turbine base, and other associated works (e.g. access tracks) can result in the loss of, or damage to, valuable habitats. These impacts can be especially significant where the habitats are difficult to replicate or restore. Longer-distance impacts can also result if, for instance, work alters the ecological features of an area (e.g. alterations to the hydrology of an area, access roads creating barriers to species' corridors). There is also the risk of collision, displacement or disturbance in the case of altered flight paths for both birds and bats.	

Key questions (steps)	Sub-questions	Answers	Traffic Light
		<p>In the case of offshore wind farms, a recent IUCN report synthesised current knowledge on the potential biodiversity impacts. The report highlights possible impacts on biodiversity, such as disturbance effects from noise, electromagnetic fields, changed hydrodynamic conditions and water quality, and altered habitat structure on benthic communities, fish, mammals and birds. The evidence suggests that negative impacts on the subsurface marine environment are strongest are greatest during the construction phase. Nonetheless, there is also potential for long-term disturbance during the operational phase.</p> <p>However, a recent study found that offshore wind farms can actually result in biodiversity benefits, in contributing towards creating a more diverse habitat. The evidence also suggested that wind farms can help an ecosystem to recover from the effects of intensive fishing, pollution, oil and gas extraction and shipping. Nonetheless, the study did acknowledge the potential for negative effects, such as disruption for some bird species from rotating blades.</p>	
	Does the incentive have also other wider impacts on the environment?	Over the longer time, wind farms can also indirectly benefit biodiversity by mitigating the effects of climate change, which can have damaging effects on wildlife, habitats and ecosystems. Measures taken during the development of a wind farm can also lead to environmental improvements through land management, land restoration and habitat creation where these are part of a development scheme.	
	YES/NO (or brief) answers	<ul style="list-style-type: none"> ▪ Is there a large change in biodiversity/ecosystems conditions due to the production/consumption patterns of the economic activity? <i>No</i> ▪ Do the effects extend over a large area? <i>No</i> ▪ Do the effects have implications at local, national, European or global level? <i>Local, (and to a lesser extent, national), potentially transnational in terms of migratory species</i> ▪ Is there any trans-frontier impact? <i>Possibly through potential impacts on migratory pathways of some species)</i> ▪ Are many people affected? <i>No</i> ▪ Does it lead to significant or potentially excessive resource use, including valuable or scarce biodiversity features or resources? <i>Occasionally</i> ▪ Are environmental/biodiversity standards breached? <i>No</i> ▪ Are protected sites, areas, features affected? <i>Yes</i> ▪ Is there a high probability of the above effects occurring? <i>No</i> 	

Key questions (steps)	Sub-questions	Answers	Traffic Light
		<ul style="list-style-type: none"> ▪ Will the effect continue for a long time? <i>Yes</i> ▪ Will the effect be permanent rather than temporary? <i>Relatively permanent, although more temporary in terms of the projects' construction</i> ▪ Will the impact be continuous rather than intermittent? <i>Continuous</i> ▪ If it is intermittent will it be frequent rather than rare? <i>N/A</i> ▪ Will the impact be irreversible? <i>Depends on the location and nature of the development (e.g. the habitat being affected, the size of the development)</i> ▪ Will it be difficult to avoid, or reduce or repair or compensate for the effect? <i>Depends on the location (e.g. the habitat being affected)</i> 	
<p>34) Are these potential biodiversity impacts limited by existing 'policy filters'?</p>	<p>Are there 'policy' filters that mitigate the environmental effects of a incentive?</p>	<p>In the UK, planning controls are in place which identify, consider and enable the potential impacts on biodiversity arising from the development of wind farms to be addressed. Land use planning and development controls provide a mechanism for which proposed developments, including wind farms, are assessed and determined as appropriate. The assessment process includes consideration of potential environmental impacts as a result of any proposed development and also includes provision for mitigation or compensatory measures to be imposed. An assessment is undertaken in the form of either Strategic Environmental Assessment (SEA) and / or an Environmental Impact Assessment (EIA). Both of these assessments consider the potential impacts on biodiversity.</p> <p>SEAs are undertaken at a policy or programme level, that is, when policy is drafted and proposed an SEA is undertaken to assess the potential impacts of that policy. EIAs are undertaken when an actual development is proposed and the threshold/requirement for an EIA to be undertaken is met. An EIA provides the mechanism for which potential impacts on biodiversity are identified. The specific planning requirements for on and offshore wind development differ depending on the scale of development. Developments that are deemed to be of national significance are considered by the Major Infrastructure Planning Unit (MIPU) and Secretary of State. Smaller scale developments are subject to local planning processes. Both development types are subject to the same environmental assessment scrutiny.</p> <p>At a development level, planning approval is required prior to any development being undertaken. Through the application process and under the Town and Country Planning (Environmental Impact Assessment) Regulations, there is a requirement for an EIA to be</p>	

Key questions (steps)	Sub-questions	Answers	Traffic Light
		<p>prepared for particular types of development, such as wind farms. Applications for developments are required to include proposals for mitigation measures. Both the MIPU and local planning authorities are required to consider the mitigation proposals put forward as part of the application and determine the adequacy of the proposal. Often the mitigation measures and long term management of the site is secured in a legally binding agreement that sets out any planning conditions and responsibilities of the developer. Such measures often include ecological monitoring of the site.</p> <p>The process and considerations described above apply to development proposals that are not within a European designated site for conservation such as an SPA or SAC. For proposals within such sites there is a requirement to determine if the proposal will have an adverse effect on the conservation status of that site. Compensatory measures may be required depending on the outcome of the environmental assessment undertaken for developments within designated areas.</p> <p>Currently the planning system in the UK is undergoing significant change and amendment through the introduction of the 2010 Localism Act. Reform measures seek to support economic growth and give communities greater say and stake in development. The assessment of wind farm developments, and the requirement for them to undergo SEA or EIA assessment (depending on their characteristics) will not be affected by these reforms.</p> <p>Proper implementation of planning controls should avoid damage to biodiversity and therefore, in theory, remove the need for action with respect to the subsidy itself.</p> <p>From the available documentation it is not clear if there is a strong view on the efficacy of planning controls as they relate to environmental protection and management of the impacts wind farms may have on biodiversity. What is documented is how conservation agencies (government and non-government) have collaborated to produce guidance documents and advice at both policy and project level that details what environmental considerations need to be taken into account when developing both on and offshore wind farms. Whilst these are not statutory in nature, they are positioned as good practice and a means of assisting both developers and relevant decision makers to develop on and offshore wind with consideration to biodiversity and environmental impacts. Whether or not the production of these guidance documents represents an identified gap in the planning system to adequately deal with environmental considerations when assessing wind</p>	

Key questions (steps)	Sub-questions	Answers	Traffic Light
		developments it is not clear. Engagement with the planning system through the production of guidance documents and collaboration between various bodies such as the RSPB and Natural England does seem to suggest however that the planning process accommodates consideration and assessment of these issues.	
	What other incentives/ subsidies are provided to the sector/economic activity?	Not examined within the scope of this study	
	Does the taxation regime counterbalance the impacts of the incentive / subsidy?	Not examined within the scope of this study	
NO NEED TO PROGRESS TO THE NEXT STAGE			

11 Conclusions and recommendations on the use of the tool

11.1 A tool to guide the reform of biodiversity harmful incentives

Decision X/44 stresses the importance of identifying, eliminating, phasing out, or reforming existing harmful incentives for sectors that can potentially affect biodiversity, with a view to minimizing or avoiding their negative impacts (CBD, 2010).

In view of this recommendation, IEEP and GHK developed this guidance tool which is designed to assist the UK and other countries to identify existing perverse incentives that are harmful for biodiversity and to better understand how these should be eliminated, phased out or reformed. This tool builds on existing guidance for the identification and reform of environmentally harmful subsidies internationally, and applies it to inform the analysis of incentives harmful to biodiversity.

The first step for using the tool (Phase 0), involves identifying what threats are posed to biodiversity, and how these are linked to key economic activities and sectors. This will then allow the analyst to identify potential subsidies or incentives within these sectors which are promoting various activities which may be causing harm. The next four phases of the 'Biodiversity Harmful Incentives Reform Tool' then aim to identify whether these subsidies need to be reformed or phased out, and what options may be available to do so:

1. **Screening of subsidies:** This screening phase serves to identify those incentives that have clear potential to harm biodiversity and are politically more viable for reform.
2. **Assessment of the need for reform:** The objective of this phase is to assess whether the subsidy reform/removal is likely to bring significant environmental benefits. If so, the assessment should be carried forward, looking at the trade-offs with social and economic impacts explored in the next phase.
3. **Analysis of reform options:** Here, concrete policy reform options for BHIs are developed. This phase should help to prepare the political decision making for the reform/removal of biodiversity harmful subsidies, and should help to identify whether reform is advisable and/or likely to be successful.
4. **Identification of opportunities for action:** The objective of this phase is to identify whether there are practical windows of opportunities, champions who could make the reform happen and due public and political support to enable progress. This would help in the timing and prioritisation of reform actions.

11.2 Case studies applying the tool

Three case studies have been selected by Defra and have been used to illustrate the tool's application and to explore the reform of incentives harmful to biodiversity in the UK. These case studies cover:

- The water abstraction regime;
- Eligibility criteria for CAP direct payments; and,
- Wind energy developments.

The case studies were very different in nature and study provided different insights into BHIs and their reform. The key conclusions and differences are presented in Table 11.1 below.

Table 11.1 Key conclusions and differences across the 3 case studies

	Water abstraction	Eligibility criteria	Wind energy developments
Need for reform	<p>HIGH</p> <p>A considerable need for reform was identified, given the length of time the system has been in place without any substantial review to its design or implementation. Moreover, it is becoming clear that the system is both unsustainable and inefficient. This need is also going to increase into the future given the rise of challenges such as climate change.</p>	<p>MEDIUM</p> <p>It is clear that the incentive is creating a situation in which farmers may decide to remove potentially biodiverse and environmentally valuable habitats due to the inherent uncertainty in the system. Although a need could be identified, there is some uncertainty however over the extent to which the problem is causing the loss of valuable habitats and the size of the threat to biodiversity in the context of other pressures</p>	<p>LOW</p> <p>Although wind farm developments have the potential to have negative impacts on biodiversity and important habitats depending on their location, planning controls are in place which should, if properly implemented, provide sufficient means for these to be identified, assessed, and mitigated. Hence the need for reform to the incentive itself is low.</p>
Ease of reform	<p>MODERATE</p> <p>Requires significant effort and a long-term view as it involves completely changing a 50+ year old system. The effort is therefore substantial, however there is a window of opportunity and a significant level of support</p>	<p>GOOD</p> <p>Relatively easy given the current window of opportunity, the relatively straightforward options for doing so and the level of support available</p>	<p>N/A</p>
Means of reform	<p>LEGISLATIVE</p> <p>Reform is a long term process (2020+) and to avoid continued negative impacts would require substantial changes, including reform of the legislative framework</p>	<p>NON-LEGISLATIVE</p> <p>Improving clarity and certainty of the guidance for implementing the eligibility criteria – reform could therefore avoid legislative changes.</p>	<p>N/A</p> <p>However does require planning controls and the planning system to be robust and effective.</p>
Conclusion	<p>Reform must be prioritised given the scale of the problem, despite the potential obstacles and challenges to doing so</p>	<p>Reform can be pursued given its relative ease and the fact that local benefits can be considerable</p>	<p>No need for reform</p>

11.3 Conclusions regarding reform of biodiversity harmful incentives

11.3.1 Applying the guidance tool

The guidance tool sets out a structured, step by step approach designed to inform the identification and reform of incentives harmful to biodiversity. It is designed to be flexible to address a wide range of situations in the UK and other countries where biodiversity is adversely affected by incentives, and to inform approaches to reforming them. The following subsections consider some of the applications and limitations of the tool and draw overall conclusions about its usefulness.

11.3.2 The scope of biodiversity harmful incentives

Biodiversity is affected, directly or indirectly, by a wide range of economic activities. Pressures on biodiversity occur directly as a result of development, land use and management, and the extraction of natural resources, and indirectly, through a wide range of production and consumption decisions that cause pollution and/or affect the use of land and resources.

Harmful incentives or subsidies are also defined broadly by the guidance tool and include not just direct payments and market supports but a much wider range of examples where resources or activities are under-priced, for example through a failure to take account of their scarcity and/or environmental costs.

As a consequence, biodiversity harmful incentives are likely to be widespread and to occur in a range of sectors such as energy, transport, manufacturing and services, as well as those more obviously linked to biodiversity such as agriculture, forestry, fisheries and construction.

It follows that the potential application of the tool is widespread, but that the priority for reform is likely to vary widely according to the extent of the pressure on biodiversity and the degree to which it is driven by harmful incentives.

11.3.3 Progress to date

In considering the application of the guidance tool in a UK context, it is important to recognise that much has been achieved in recent years in reforming environmentally harmful subsidies and in pricing environmental externalities. The UK has been central to the debate about the reform of the CAP and has played a leading role in developing agri-environment schemes and in increasing their share of expenditure. Vehicle excise duties, the landfill tax and the aggregates tax are further examples of efforts to ensure that prices better reflect environmental costs. Action is also being taken to reform incentives for water abstraction to ensure more appropriate pricing of the use of water resources.

As a result of these and other developments, biodiversity harmful incentives are much less of a problem than they might have been in the past, and clear cut opportunities for reform are more difficult to find, where they not already been identified.

11.3.4 Action at UK and EU level

The scope for incentive reform in the UK is also limited by what is achievable at national level, rather than requiring EU wide action. The Common Fisheries Policy and Common Agricultural Policy remain among the greatest priorities for incentive reform in the UK, but can only be achieved through EU wide negotiations, in which the UK continues to play an active role. The relevance of these policies for biodiversity is widely understood, limiting the value that can be added through a general guidance tool such as this.

11.3.5 Reforming incentives or applying safeguards

Another important factor in addressing the biodiversity harmful incentives agenda is the degree to which reform of incentives should be a priority, or whether attention should focus on safeguards to their application. Biodiversity is potentially affected by a wide range of incentives, but is also protected by a range of different mechanisms. National and EU nature conservation designations, the planning system, EIA regulations, cross compliance rules and water legislation are all examples of mechanisms that can help to safeguard biodiversity from adverse pressures. Even where potentially harmful activities are incentivised, these safeguards can help to prevent adverse impacts on biodiversity.

An example is provided by the case study on wind energy, which is promoted through renewables incentives in order to meet climate change objectives, but which can impact negatively on biodiversity in some circumstances, and particularly on sensitive sites. Planning systems in the UK aim to avoid adverse impacts on biodiversity from renewables and other developments. If fully and consistently enforced, planning legislation and guidance should minimise risks to biodiversity, suggesting that this, rather than changes to renewables incentives, might be the priority.

11.3.6 Biodiversity harmful incentives and environmentally harmful subsidies

Most of the incentives potentially harmful to biodiversity highlighted in the guidance tool also have other environmental impacts. Indeed, many affect biodiversity only indirectly through their effects on climate change, air quality or the water environment. Examples include taxation of aviation fuel and domestic energy, and pricing of water. This suggests that reform of biodiversity harmful incentives should be seen in the context of the wider environmentally harmful subsidies agenda. However, the guidance tool also highlights the need to consider specific evidence of biodiversity pressures (such as through the National Ecosystem Assessment) when determining priorities.

11.3.7 Future priorities for reform

As a result of these different considerations, a general conclusion from the development and testing of the tool is that there might be some priorities for reform of biodiversity harmful incentives. However many such perverse incentives have already been identified in the UK context and measures are already being taken to address them. Nonetheless, the tool can be used to identify these priorities in a structured way, and to guide action for reform. It provides a mechanism for reviewing and understanding financial flows across different sectors and economic activities, in order to identify biodiversity harmful subsidies which may otherwise be difficult to identify.

11.3.8 Potential international applications

The tool is likely to have wider applications in other countries, and has been designed to be flexible to different contexts. Defra may therefore wish to share it with other countries through the CBD incentives agenda.

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Annex 1 What is an environmentally harmful subsidy?

A agreed definition of what constitutes ‘environmentally harmful subsidies’ is still lacking, and even a simple definition of ‘subsidy’ is still open to interpretation – see below.

What is a subsidy?

To date, there is no universally accepted definition of a subsidy (OECD, 2006a). The definition that is most widely used in the policy context is that of the OECD (2005), which defines subsidies as:

‘A result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs’

This definition allows several government support measures to be considered as subsidies. It includes on-budget subsidies, which appear on national accounts as government expenditure and includes direct cash transfers, low interest loans or reduced rate loans, the government provision of goods and services and subsidies to R&D. It also includes ‘off-budget’ subsidies which do not appear on national accounts, such as tax exemptions and rebates, preferential market access, limited liabilities, accelerated depreciation allowances, and selective exemptions from government standards.

The above definition does not include implicit subsidies that result from non-internalisation of externalities or lack of full cost pricing. Pieters (1997) proposed a slightly broader definition of a subsidy that addresses this by defining subsidies as ‘*deviations from full costing*’, although these may sometimes be difficult to measure.

While a broad definition, including both full cost pricing for resources and internalisation, is operationally difficult, it is important to recognise that such implicit subsidies exist and can be quite significant in all sectors. Table 1 below presents a classification of different economy types of subsidies. In the identification of subsidies it is generally useful to identify the economic type to facilitate any subsequent analysis of the importance of the subsidy and the potential benefits of reform.

Table 1 Economic types of EHS

#	Economic type	Specific subsidy type covered ¹²	Examples
On-budget subsidies			
1	Direct transfer of funds	(a) Direct transfer of funds	e.g. grants and subsidies to fossil fuels, roads, fishing vessels capacity
		(b) Potential direct transfers of funds, e.g. covering liabilities, guarantees	e.g. (lack of or partial) nuclear energy liability
2	Provision of goods or services (other than general infrastructure)	(c) Government provides goods or services other than general infrastructure	e.g. fish fleet expansion / modernisation
		(d) Government directs other bodies to do any of the above	As above, funded by other bodies
Off-budget subsidies			
3	Income or price support	(e) Income or price support	e.g. price support to agricultural goods, water

¹² Building on different categories used by OECD, WTO, ESA and Pieters (2003)

4	Foregone government revenues	(f) Government revenues due are foregone or not collected, e.g. tax credits	e.g. land donation/use restrictions
		(g) Tax exemptions and rebates	e.g. VAT exemption to aviation fuel
		(i) Accelerated depreciation allowances	
5	Preferential treatment	(h) Preferential market access	e.g. regulated market access for taxis
		(j) Regulatory support mechanisms	e.g. feed-in tariffs, demand quotas
		(k) Selective exemptions from government standards	e.g. GHG emissions from landfill and incineration not in ETS
6	Provision of infrastructure	(m) Implicit subsidies, e.g. resulting from the provision of infrastructure	e.g. road infrastructure provided by the government and not (fully) paid by vehicle users
7	Lack of full cost pricing	(n) Implicit income transfers resulting from a lack of full cost pricing	e.g. Under-pricing leading to incomplete coverage of drinking water costs (abstraction, treatment, distribution etc.), waste disposal, energy supply
		(o) Implicit income transfers resulting from non-internalisation of externalities	e.g. no or partial liability for oil spills, IAS impacts, damage to ecosystems (e.g. nitrate run-off and eutrophication; plastic bags, batteries et al).
		(l) Resource rent for foregone natural resources	e.g. access to fisheries; water under-pricing not covering for water scarcity, no payment for raw materials such as rock, aggregates, sand

Source: Authors, based on IEEP et al, 2007

Within the CBD context (CBD decision X/44) the terminology of “incentives harmful to biodiversity” is used. This avoids some confusion that arises when people use subsidies to mean different things as it allows the wider set of economic subsidy types noted above to be included. Given that the term “environmentally harmful subsidies” is in such common use, and the immediate objective is to encourage focus on identification of subsidies that are harmful to the environment and developing a road map for their reform, within this guidance we continue to use EHS.

One possible definition of environmentally harmful subsidy (EHS), which draws on the OECD’s 1998 and 2005 definition of ‘subsidy’ in the box above, can be:

‘A result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs, but in doing so, discriminates against sound environmental practices.’

Adapted from OECD (1998, 2005)

This definition is relatively broad and has the advantage of potentially encompassing a range of subsidies, including off-budget subsidies. However, this definition does not include implicit subsidies that result from non-internalisation of externalities or lack of full cost pricing (e.g. not applying a sufficiently high water price that covers for abstraction costs and/or for water pollution and resource scarcity). However, a *definition* of subsidies as 'deviations from full costing' is difficult to measure, as it is difficult to measure the true costs of externalities.

From another perspective, a subsidy can also be considered harmful to the environment if it leads to a higher level of (polluting) production and consumption than would be the case without the support measure. Following on from this, another definition of EHS is the following:

'All other things being equal, the [environmentally harmful] subsidy increases the levels of output/use of a natural resource and therefore increases the level of waste, pollution and natural exploitation to those connected'

Adapted from OECD (2005)

The above definitions of EHS are considered generic and by no means perfect. They are nonetheless the most widely used and accepted by the scientific community. The OECD for instance notes that what actually qualifies as an EHS varies over time and place. The tool developed in this report is meant to help identifying the linkages between financial support to an activity/sector and its impacts on biodiversity, taking into account the existing definitions of EHS with due flexibility.