



Business @  
Biodiversity

# **B@B Workstream 2: Innovation for Business and Biodiversity**

**Final Report**

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## 1 Introduction

This paper is the outcome of the work conducted on the Innovation Workstream (Workstream 2) of the EU Business and Biodiversity Platform (the B@B Platform) between November 2013 and October 2014.

This paper presents the objectives, approach and method and findings of the Innovation Workstream. Findings are drawn from evidence supplied by B@B Platform members, observers, representatives and others, with some context and background provided for each section. The names of contributing organisations are given in table 2.1 and **highlighted in bold** in sections 2.2.2, 2.3.2 and 2.4.2.

This paper complements a similar paper for the Finance Workstream (Workstream 3) and a paper reporting progress on the Natural Capital Accounting Workstream (Workstream 1). There is some inevitable overlap, in particular between the papers on Innovation and Finance, given that a number of business innovations (e.g. for biodiversity offsetting) relate to the generation of finance for biodiversity.

### 1.1 Objectives of the B@B Platform and of the Innovation Workstream

The objectives of the B@B Platform for the year to October 2014 include:

1. Providing an **EU level forum** for a sustained and strategic dialogue concerning the delivery of objectives under the EU Biodiversity Strategy to 2020;
2. Working with business to **develop tools and approaches** that will promote the integration of biodiversity considerations into business practice;
3. **Supporting the actions being undertaken by Member States** by encouraging and promoting potential synergies between different national actions and between the EU level and the national level; and,
4. Promoting **better communication, increased awareness and improved coordination** in relation to Business and Biodiversity activities.

Phase 2 of the B@B Platform is based on three workstreams on (1) natural capital accounting, (2) innovation, and (3) financing for business and biodiversity,

**Workstream 2 of the EU B@B Platform seeks to promote innovation that contributes to nature and biodiversity conservation and provides business opportunities.** The specific objectives of this Workstream for the year to October 2014 are to:

- **Showcase innovative business models and companies involved in green infrastructure and ecological restoration** (though other relevant business innovations might also be showcased);
- **Identify priorities for further research on critical issues relating to these innovations and opportunities for their further development;**
- **Analyse opportunities at EU level to foster new business models, such as benefit corporations, which might contribute to nature and biodiversity objectives.**

The present paper aims to meet these three Workstream objectives.

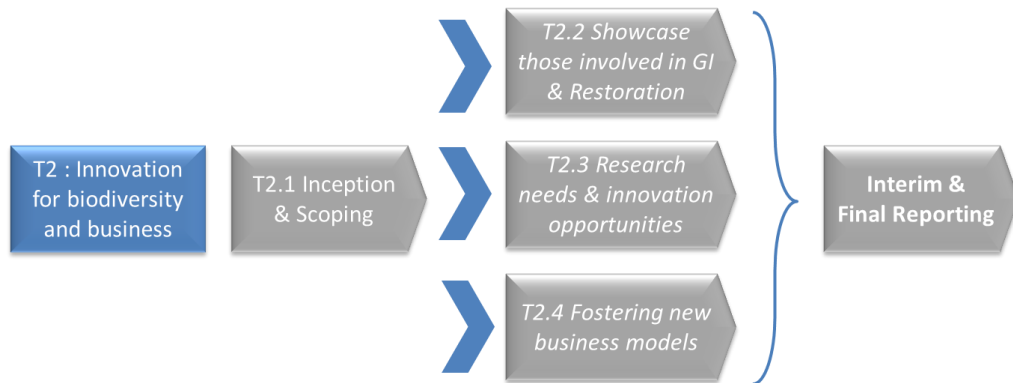
Case studies referred to in this report are showcased through case study fiches (numbered in line with this report, see Table 2.1) that are presented separately on the EU B@B Platform website.<sup>i</sup>

## 1.2 Approach and method

### 1.2.1 Approach

This Workstream (Task T2) was addressed through five research sub-tasks (T2.1 – T2.5), three of which (T2.2-T2.4) which were implemented in parallel (*Fig. 1.1*).

**Figure 1.1 Structure of Task T2 – Innovation for biodiversity and business**



The Workstream was designed to be interactive, engaging with members, observers and representatives, the B@B Bureau as well as the wider literature and evidence base in order to identify innovative examples, practices and areas in need of further research.

Case studies are presented using evidence submitted by Platform members, observers and representatives and others. Most of the evidence submitted is qualitative but quantitative data is presented where available, to illustrate the scale of issues and opportunities in each thematic area.

### 1.2.2 Method

Following inception and scoping of the task (T2.1) with the Commission, the remaining sub-tasks were addressed through 5 steps:

1. **Call for evidence** from members, observers and representatives.
2. **Analysis of responses** to the call for evidence, and **further contextual research**.
3. **Development of innovation case studies**
4. **Draft and finalise report on the Innovation Workstream**, in discussion with the Commission and B@B members, observers and representatives.
5. **Showcase report and case studies on website.**

The call for evidence was drafted and issued to all members and observers of the Workstream on April 4<sup>th</sup> 2014. The call provided an overview of and context for the three specific objectives of the workstream (see 1.1, above). The paper invited submission of case studies addressing these three objectives and provided a response pro forma. Responses to this call were requested by an initial deadline of 25<sup>th</sup> April. The deadline was subsequently extended to 15<sup>th</sup> May and reminders issued to all recipients. The call for evidence was also issued to c. 15 additional companies involved in relevant innovation, as identified by the study team. A total of 23 responses were received of which 2 could not be considered (insufficient information provided in English, or out-of-scope).

A discussion paper (a draft of the current paper) was drafted on the basis of the responses received. This involved reviewing the case studies submitted, collating them in a standard format, developing a typology of innovations, summarising key areas of research identified



by contributors, and summarising other enabling actions to promote new business models/ innovations (e.g. policy actions, financing actions, awareness-raising actions), including possible actions for Phase 2 years 2 and 3 of the B@B Platform. The case studies were presented in an annex (now replaced by separate fiches, see below), using a standard format based on the template issued with the call for evidence.

The discussion paper and annexed case studies were reviewed by the B@B Bureau at its meeting of 8<sup>th</sup> July. A slightly amended version of the paper was then issued to B@B members, observers and representatives on 24<sup>th</sup> September, with an invitation to submit comment by 10<sup>th</sup> October. The current final paper was then prepared in the light of comment received.

A separate fiche on each case study was drafted for posting to the B@B Platform website. The draft fiches were issued to the respective case study contributors on 8<sup>th</sup> October with an invitation to comment on and approve the fiche for posting to the B@B Platform website by 17<sup>th</sup> October. The fiches were amended in the light of comment received and will be posted to the website by end October 2014. Taken together, they showcase examples of business innovations and models, highlight research needs and opportunities to foster promising innovations and business models.



## 2 Findings

### 2.1 Overview of responses to the call for evidence

An overview of the 21 valid submissions is presented in *Table 2.1*, which indicates which of the three specific objectives of the Workstream each of the submissions address.

Table 2.1 organises the submissions according to the membership category of the submitting organisation, as follows:

1. 'Full members' of the B@B Platform Innovation Workstream
2. 'Member State members' of the B@B Platform Innovation Workstream
3. 'Observers' of the B@B Platform Innovation Workstream
4. 'Representative members' of the B@B Platform Innovation Workstream
5. Non-members of the B@B Platform Innovation Workstream but members of other B@B Platform workstreams.
6. Other non-members.

Within each category, submissions are presented in alphabetical order of the name of the submitting organisation. As detailed fiche for each case study is posted separately to the B@B Platform website.

### 2.2 Showcasing innovative business models and companies involved in green infrastructure and ecological restoration

#### 2.2.1 Context and background

##### **Why innovate for business and biodiversity?**

Europe 2020,<sup>ii</sup> the EU's growth strategy, identifies new engines to boost growth and jobs, which are addressed by seven 'flagship initiatives', one of which is 'Innovation Union'<sup>iii</sup> and another of which is 'Resource Efficient Europe.'<sup>iv</sup> Europe's future economic growth and jobs will increasingly have to come from innovation in products, services and business models.

The Innovation Union flagship initiative aims to improve conditions and access to finance for research and innovation in Europe, to ensure that innovative ideas can be turned into products and services that create growth and jobs.

The Resource Efficient Europe flagship initiative supports the shift to a resource-efficient, low-carbon economy to achieve sustainable growth. It recognises that natural resources underpin our economy and our quality of life. The initiative will bring major economic opportunities, improve productivity, drive down costs and boost competitiveness. It provides a long-term framework for actions in many policy areas, including biodiversity. These are further detailed in the Road Map to a Resource Efficient Europe<sup>v</sup> which includes action to "*promote the use of innovative financial and market-based instruments and explore their wider potential...to address challenges to ecosystems and biodiversity,*" and to "*foster investments in natural capital, to seize the full growth and innovation potential of Green Infrastructure and the 'restoration economy'.*"

Innovation that provides business opportunities while, at the same time, contributing to nature and biodiversity conservation is a win-win. It helps deliver growth and jobs, while at the same time helping to deliver on key EU targets to conserve and restore biodiversity and ecosystem services. In this way, it helps deliver truly sustainable development.

**Table 2.1 Overview of responses to the call for evidence**

Organisation name	Objective 1: Business models/companies involved in Green Infrastructure and Restoration	Objective 2: Need for further research on critical issues and the opportunities for the development of promising ideas and innovations	Objective 3: Opportunities for fostering new business models at EU level
<b>(1) Full members</b>			
1. The Environment Bank Ltd (UK)	Ecosystem services markets, primarily biodiversity offsetting	Yes, research needs identified	Yes, opportunities to foster the model identified.
2. Fieldfare International Ecological Development (UK)	Pro-biodiversity business with ethical investors, mainly in lower Danube area	Yes, research needs identified	N/A
3. Heidelberg Cement (BE)	(1) Heidelberg/BirdLife Biodiversity Conservation Programme (quarry restoration)	N/A	N/A
	(2) Quarry Life Award (Research and Education competition)	N/A	N/A
	(3) ENCI quarry restoration and research (NL)	N/A	N/A
4. Ibero-Rest (ES)	Ecological restoration of degraded lands.	Yes, research needs identified	Yes, opportunities to foster the model identified.
5. Landmarc (UK)	Pilot natural capital decision support tool	Yes, research needs identified	Yes, opportunities to foster the model identified
6. RGV (NL)	GI related to swimming and outdoor recreation	Yes, research needs identified	Yes, opportunities to foster the model identified
<b>(2) Member State members</b>			
7. Platform BEE (NL)	National platform for biodiversity, ecosystems and economy	N/A	N/A
<b>(3) Observers</b>			
8. Tractebel Engineering (GDF-Suez) (BE)	'Temporary nature'	Yes, research needs identified	Yes, opportunities to foster the model identified
9. Suez Environnement (FR)	Artificial wetlands for processing of micro-pollutants	No	Yes, opportunities to foster the model identified
10. URS/National Grid (UK)	Natural capital and ecosystem services tool	Yes, research needs identified	Yes, opportunities to foster the model identified
11. AmBioDev (PT)	Biodiversity Action Planning tool for agriculture and forestry sectors	Yes, research needs identified	Yes, opportunities to foster the model identified



Organisation name	Objective 1: Business models/companies involved in Green Infrastructure and Restoration	Objective 2: Need for further research on critical issues and the opportunities for the development of promising ideas and innovations	Objective 3: Opportunities for fostering new business models at EU level
12. Green4Cities GmbH (AT)	Green Infrastructure Urban Competence Centre	Yes, research needs identified	N/A
<b>(4) Representatives</b>			
13. Business in the Community NI (UK)	Business and biodiversity Charter	No	No
14. CDP Europe	Development of a global system for companies to measure, disclose, manage and share environmental information	No	No
<b>(5) Other non-members Innovation WS</b>			
15. Lafarge	Innovative building solutions for green corridors/infrastructure	No	Yes, opportunities to foster the model identified
16. Shell	Strategic integration of green infrastructure with grey infrastructure	Yes, research needs identified	Yes, opportunities to foster the model identified
17. VICAT	Quarry restoration	Yes, research needs identified	Yes, opportunities to foster the model identified
<b>(6) Non-members Innovation WS</b>			
18. ECNC	Healthy Seas initiative – recycling of marine litter	Yes, research needs identified	Yes, opportunities to foster the model identified
19. HiPP	Integration of biodiversity in organic farming, including: (1) a model production operation; (2) development of biodiversity indicators for food producers; (3) research to define management systems and measures to promote biodiversity along the value chain of food production.	No	Yes, opportunities to foster the model identified
20. SAR Consult	River and wetland ecological restoration	Yes, research needs identified	Yes, opportunities to foster the model identified
21. interface/ZSL	Net-Works recycling of discarded fishing nets	Yes, research needs identified	Yes, opportunities to foster the model identified.





## **The policy context for innovation in relation to Green Infrastructure and Restoration**

There have been a number of developments in EU policy of particular relevance to this Innovation Workstream, notably relating to Target 2 of the EU Biodiversity Strategy to 2020.<sup>vi</sup> These include the recent Communication on Green Infrastructure (GI)<sup>vii</sup> and ongoing discussions on the preparation of a No Net Loss Initiative and on the development of a Restoration Prioritisation Framework.

The GI Communication provides the following working definition of GI: *“a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces (or blue if aquatic ecosystems are concerned) and other physical features in terrestrial (including coastal) and marine areas. On land, GI is present in rural and urban settings.”* The Communication outlines the need to improve the knowledge base and encourage innovation in relation to deploying GI. We will build on this in identifying a range of business innovations, which may contribute to this deployment.

A Working Group on No Net Loss (2012-2013) developed advice to the Commission including on scope and objectives for the forthcoming No Net Loss Initiative, principles, and management and support instruments. In passing, this threw light on a number of innovative business opportunities, for example in relation to the possible expansion of markets for biodiversity offsetting. The Commission launched on 5<sup>th</sup> June 2014 a public consultation on the No Net Loss Initiative; the consultation closed on 17<sup>th</sup> October 2014.

The Commission’s Impact Assessment for the Biodiversity Strategy defines restoration as *“The return of an ecosystem to its original community structure, natural complement of species, and natural functions.”*<sup>viii</sup> A study for the Commission on Priorities for Restoration has addressed options for the setting of national restoration targets, criteria for priority setting, and support and financing mechanisms, and points the way to a range of potential future business opportunities.<sup>ix</sup>

During early 2014, work was carried out in support of the planned EIB/EC Natural Capital Finance Facility,<sup>x</sup> with the purpose of scoping the range of business opportunities that might benefit from such a facility. This is likely to reveal a number of additional innovative business models/companies of relevance for Workstream 2.

Innovative business opportunities relating to nature and biodiversity do not arise solely in relation to Target 2 of the EU Biodiversity Strategy, and Workstream 2 takes in to consideration other areas of the Strategy where business innovation can contribute.

## **Recent work on innovation for business and biodiversity**

In Phase 1, the European Business and Biodiversity Platform carried out work on benchmarking best practice concerning risk, responsibilities and opportunities in relation to nature and biodiversity conservation, for six sectors (agriculture, forestry, food supply, non-energy extractives, tourism, finance). While not directly addressing innovation, this work contains some relevant material for the current task on innovation.

A growing number of studies and papers are examining more directly the opportunities for businesses to contribute to nature and biodiversity through innovation.

Notably, recent work by the UK’s business-led Ecosystem Markets Task Force (EMTF) focused on exactly this question in the UK context. The EMTF was given a remit to *‘review the opportunities for UK business from expanding green goods, services, products, investment vehicles and markets which value and protect our natural environment.’* The EMTF reported to Government in March 2013.<sup>xi</sup> Many of the opportunities identified, for example relating to biodiversity offsetting, sustainable local wood fuel, nature-based certification and labelling, water and wastewater catchment management, and nature-based flood defences, focus on how business can contribute to green infrastructure and restoration, and have high relevance for other EU Member States.



While less heavily focused on innovation, the recent book on *The Economics of Ecosystems and Biodiversity in Business and Enterprise* (TEEB, 2012) offers examples of how leading companies are taking action to conserve biodiversity and to restore ecosystems. This includes examples of how companies are responding to changing consumer preferences for nature-friendly products and services, examples of innovative practical tools to manage biodiversity risks in business, examples of new business models that deliver biodiversity benefits and ecosystem services on a commercial basis, and a review of the policy enabling frameworks needed to stimulate investment and entrepreneurship to realize such opportunities, and the obstacles that must be overcome. Some EU Member States (e.g. Netherlands,<sup>xii</sup> Germany<sup>xiii</sup>) have initiated TEEB for Business projects at national level. The work of the EMTF in the UK might in some respects be considered the UK TEEB for Business.

Evidence that innovation in relation to biodiversity and ecosystems is of rising interest to societies is provided by the success of Tony Juniper's new book entitled *What has Nature ever done for us?*. The bestselling work describes how natural systems underpin economic development and sets out many examples of where innovative business ideas are being used to achieve both commercial and conservation outcomes.

### **A new and emerging narrative**

In parallel with the work of EMTF and TEEB processes there has been an increasing level of engagement by individual companies on the matter of how natural and semi-natural ecosystems can be harnessed for business advantage, while at the same time either keeping them intact, enhancing or recreating them.

These initiatives, a sample of which is profiled in this paper, are creating a new frame of reference for good practice among modern companies that is likely to spread and become more embedded going forward, even at a time when the political appetite for pursuing environmental goals is relatively diminished. This is because various drivers are combining to create momentum toward the kinds of findings presented by EMTF and TEEB.

These drivers include continuing public demand for action and the reputational risk that comes with inaction, business-to-business and supply chain demand for high standards and a rising awareness among senior executives that trends related to, for example, climate change, ecosystem damage and resource depletion are long-term and are likely to present an increasingly important context for business strategy.

These and other factors are feeding a rising acceptance among business leaders as to the basic messages from initiatives such as EMTF and TEEB. These include how it is illogical to see a choice between economic development and sustaining ecosystems, how there are business opportunities that can be derived from working with healthy ecosystems and how cost and competitiveness advantages can be gained in the process.

This amounts to what is an effective re-framing of how companies look at the challenges they face in relation to ecosystems and as a result of that the emergence of a new business narrative. Whereas it was once the case that businesses largely regarded the conservation and enhancement of nature as a cost to be balanced against profitability, it is increasingly the case now that businesses see the maintenance of healthy nature as an essential prerequisite for success – including because of the drivers just mentioned.

To this extent there is an increasingly apparent trend, at least among leading companies, to seek ways to *integrate* their activities with steps to protect and enhance nature, by contrast with the situation that has historically prevailed, whereby the task was seen very much in terms of *reducing damage*.

It is likely that the momentum created by initiatives such as EMTF and TEEB will continue, not least indicated by the number of other initiatives that have come in their wake, not only through the work of individual companies but also multi-sectoral global processes, such as the Natural Capital Coalition<sup>xiv</sup>, and multi-business initiatives, such as the Natural Capital Platform instigated by the University of Cambridge Institute for Sustainability Leadership (CISL)<sup>xv</sup>. These and many other on-going conversations are likely to lead to the emerging



new narrative becoming more embedded, in turn leading to further demand for action, and thus further innovation.

Innovation is already apparent, however, as seen in the case studies presented in this report. It takes diverse forms but can be categorized into a number of headings. For the purposes of this review these are in relation to 'green infrastructure', ecological restoration, new tools, standards and measurements, offsetting, knowledge sharing, recycling and financing.

## 2.2.2 Examples from B@B members

### Innovation for green infrastructure

The wide scope of green infrastructure, encompassing natural and semi-natural space, both green and blue environments, and interventions at scales from trans-national to the very local, offers a very wide range of business innovation opportunities.

Members of the B@B Platform have submitted the following cases relating to innovations for green infrastructure:

- **RGV** (case 6) develop outdoor recreational areas, typically on agricultural land, creating within these areas of high nature value (though the biodiversity outcomes are not yet sufficiently monitored to quantify benefits). Revenue is generated through parking charges, events, and letting/leasing of facilities. The company currently manages 20 areas with a total of 4-5 million visitors per year. The aim is to limit construction at these sites to 3% of the total land area. The business model is fully operational (TRL9).
- **Suez environnement** (case 9) has developed 'ZHART', which involves the construction of artificial wetlands at the output of wastewater treatment plants, for the treatment of micro pollutants (endocrine disruptors, drug residues, hazardous substances) in wastewater. The wetlands, which average 5 ha each, provide wildlife habitat, can be used as an educational resource. The approach could be extended across the EU. ZHART will be marketable within 6 months (currently TRL 6/7).
- **Lafarge** (case 15) is developing innovative building solutions to enhance biodiversity and green infrastructure, such as through the addition of communal garden spaces to high-density urban apartments, using innovative concrete technologies.
- **Shell** (case 16) is involved in a wide range of activities relating to green infrastructure including the use of reed beds for water treatment, natural reclamation and erosion control for pipelines, and use of oyster reefs to control coastal pipeline erosion. The latter deliver cost savings of \$0.5-2m per mile compared with grey infrastructure. These natural solutions provide a range of marine and wetland habitats for biodiversity.

### Innovation for ecological restoration

The science and practice of ecological restoration has developed rapidly over recent decades. The 'restoration economy' in the US is now a multi-billion industry.<sup>xvi</sup> The emergence of a similar restoration economy in Europe presents considerable opportunity for business innovation. Members of the B@B Platform are engaged in a range of innovations for ecological restoration:

- **Heidelberg Cement** (case 3) has developed (with BirdLife International) a Biodiversity Conservation Programme (BCP) for its operational sites. 84 quarries have been prioritised for action in relation to priority species and habitats. Conservation objectives will be gradually integrated into the standard operational practices at quarry sites via Biodiversity Management Plans. Specific projects will be developed and implemented involving local managers and national BirdLife partners. Outcomes will be documented and evaluated for possible replication outside Europe. The work has enabled Heidelberg Cement to focus its biodiversity efforts more effectively.



- **Ibero-rest** (case 4) specializes in technical projects for restoration of damaged or degraded natural areas and has developed an innovative business model, based on the direct application of the latest research (Ibero-rest has a close relationship with some of the leading Spanish universities). While the technology is not new, the approach is innovative, taking in to account the environmental, social and economic development of the area.
- **Tractebel Engineering (GDF Suez)** (case 8) has developed the concept of 'temporary nature', which involves managing developable sites for nature whilst they are awaiting the start of the development process. In such sites, it is important that the landowner or project developer has full legal certainty that the nature can later be 'taken away,' once development starts. 'Temporary nature' can range from no intervention, to habitat or species-specific management. Temporary nature offers benefits for nature and also for local recreation. There is a significant potential land area for temporary nature – in Belgium alone, c. 17000 ha of undeveloped industrial zoning sites.
- **VICAT** (case 17) quarries rock for cement. VICAT has developed an internal engineering service for quarry restoration. The service manages environmental studies, offsetting, monitoring and restoration, through partnerships and subcontracts where needed. The process has been in operation at about 50 quarries for many years. There are considerable benefits to biodiversity – some restored quarries have been integrated in to Natura 2000 sites. The company benefits in terms of local project acceptability, reputation, and permitting of new projects (license to operate).
- **SAR Consult** (case 20) is active in the ecological restoration market, with a particular focus on rivers and wetlands. The company provides consultancy services for river enhancement, ecological river restoration, wetland creation, and freshwater fish advice. It also develops products that can serve as artificial restoration elements, if natural techniques are not possible. Key clients are public sector river managers. The business model is based on consultancy services while diversification is under way through new lines of product development.

#### **Innovative tools and standards for natural capital and ecosystem services accounting and management**

Tools for natural capital and ecosystem services accounting and management are addressed at greater length by Workstream 3 of the B@B Platform, which is working to develop a decision framework and set of principles that can help companies determine what form of natural capital accounting they should adopt, and identify existing best practice guidance and tools available to support them.

Members of the B@B Platform are engaged in a range of innovations relating to tools and standards for natural capital and ecosystem services accounting and management:

- **Landmarc** (case 5) has developed and successfully piloted, to proof-of-concept stage, a GIS-based natural capital decision support tool which enables users to query the characteristics of an area in terms of natural capital, and to locate areas that meet a set of user-defined criteria, in order to support land-use decision-making.
- **URS/National Grid** (case 10) has developed a Microsoft Excel-based tool to establish the natural capital and the (market and non-market) values of ecosystem services on National Grid landholdings and how these would change under various management interventions. The tool is at Technological Readiness Level 6 (demonstrated in relevant environment).
- **AmBioDiv** (case 11) has developed a tool for farmers and foresters to develop a biodiversity baseline, identify value and market opportunities related to nature on the landholding, and develop a biodiversity action plan to achieve no net loss or net gain of biodiversity.



- **Business in the Community Northern Ireland** (case 13) is developing a business and biodiversity charter, with different levels of attainment. The charter provides a structured approach for businesses to examine the biodiversity impact of their activities, products and services and make changes to their operations. The charter is at a draft stage and will be trialled during the remainder of 2014.
- **CDP Europe** (case 14) is developing a global system for companies and cities to measure, disclose, manage and share vital environmental information. The system focuses on companies in the food, beverage, and agricultural value chain, which have some of the most important impacts on natural capital. The system uses a commodities lens, and more specifically the security of commodities supply. It encourages companies to take support and adopt standards around sustainable agriculture or commodity specific certification, and to take a landscape level approach, and uses shareholder authority to steer companies in this direction. CDP has successfully trialled this for forests information (139 companies with market capitalisation of \$3 trillion replied) and will extend this to biodiversity in forests and in the marine environment. CDP intends to use the learning and experience of leading companies to promote improvement across the entire sector.

#### Innovation for biodiversity offsetting

A biodiversity offset is a measurable conservation outcome resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development and persisting after appropriate prevention and mitigation measures have been implemented. The goal of biodiversity offsets is to achieve no net loss, or preferably a net gain, of biodiversity on the ground with respect to species composition, habitat structure and ecosystem services. In Europe, the focus is very much on development impacts on semi-natural (as opposed to primary) habitats in the 'wider countryside' (i.e. outside Natura 2000 areas), where residual impacts are at present frequently not accounted for (leading to cumulative biodiversity losses), and for which restoration techniques are well established. Biodiversity offsetting is already a € multi-billion market worldwide<sup>xvii</sup> and there is increasing interest in offsetting as a promising instrument to deliver no net loss in the EU, given appropriate safeguards. The development of offsetting presents opportunities for a range of business innovations relating to better accounting for impacts on nature, including brokerage of compensatory markets, the creation and management of habitat banks, assessment and assurance.

One member of the B@B Platform has submitted an innovative business model relating to offsetting:

- **The Environment Bank Ltd** (case 1) is a UK company which acts as a broker and delivery agent in emerging markets for environmental assets, in particular in relation to compensation for development impacts on biodiversity. EBL is developing key elements for functional delivery, namely metrics, trading systems, and delivery systems. EBL is also developing approaches for asset class integration, which will allow other environmental assets, such as nature-based carbon, and water quality, to be traded using the EBL systems. EBL's business model is already proven in an operational environment. The potential scale of the market in England has been estimated at £90-470m per year, delivering 300,000 ha of ecological creation/restoration over 20 years. The model can be adapted to other emerging compensatory markets in the EU, wherever governments chose to encourage a market-based 3<sup>rd</sup> party approach.

#### Knowledge platforms for innovation

In addition to the EU B@B Platform, a number of Member States have established platforms in support of business and biodiversity. There is also a wide range of initiatives at global, regional and more local scales.



Members of the B@B Platform have submitted the following two cases:

- **Platform BEE** (case 7) is the Dutch national platform for business and biodiversity and is established as a PPP with the Government. Members are private companies and NGO's as well as umbrella organizations. It was initiated by IUCN NL and VNO-NCW, the main employer's organization in NL, and gives subsidies to innovative and strategic projects of companies and with companies, aimed at incorporating Natural Capital in their strategy as well as innovations to release the pressure on NC. In addition, Platform BEE provides and develops tools for companies like a BES quick-scan tool in co-operation with the WBCSD.
- **Green4Cities** (case 12) is a Green Infrastructure Urban Competence Centre, offering innovation, development and research, consultation and guidance, education and training, events, networks and strategic actions, for example relating to green walls and roofs. From 2015 onwards activities will include micro- and meso-scale modelling of single Projects as well as City Quarters.

### Innovations for recycling

Recycling offers opportunities to benefit biodiversity through the removal of waste and from natural and semi-natural habitats, and through the reduction of demand for primary raw materials from habitats on which biodiversity depends.

Members of the B@B Platform are engaged in a range of innovations relating to recycling:

- **ECNC** (case 18) has developed a 'Healthy Seas, a Journey from Waste to Wear' initiative which aims to remove waste, in particular fishing nets, from the seas for the purpose of creating healthier seas and recycling marine litter into textile products. This involves collaboration between ECNC, Aquafill and Star Sock. It is currently operating (TRL level 9) in the North Sea and Adriatic.
- **Interface/ZSL** (case 21) has developed a similar, community-based initiative to recycle discarded fishing nets as carpet tiles. The innovation is a TRL8/9 tested, launched and operational. There is significant scope to expand such initiatives – 640,000 t of nets are discarded annually.

### Harnessing ethical investment for pro-biodiversity business

Workstream 3 focuses on finance for business and biodiversity and provides more detail on the range of financing opportunities.

One member of the B@B Platform has submitted a case study on innovation related to harnessing ethical investment for pro-biodiversity business:

- **Fieldfare International Ecological Development (case 2)** harnesses the resources of the ethical investment movement in Western Europe for promoting ecologically sustainable development and wise use of natural resources, especially in Eastern Europe. Activities currently focus on the Danube Delta and the local harvesting of overgrown reed beds for biomass fuel, resulting in more biodiverse wetlands.

Many of the 'types' of innovation set out above and which emerge from the contributions from B@B Platform members of case studies showing how innovation is already taking place are of course already quite familiar elements in the environmental debate in Europe. To this extent the steps already being taken, and from which scale could be sought, are evolutionary rather than revolutionary with perhaps the most significant development being the extent to which they are now presented through the kinds of new frames that emerged from the findings of processes that include TEEB and the EMTF. This might be characterized as marking a shift from the 'ethical' case for nature based on 'corporate social responsibility' to one based on a sound core business case.

## 2.3 Identifying priorities for research and opportunities for development of ideas and innovations

### 2.3.1 Context and background

Many innovations for business and biodiversity will require enabling actions and further research in order to take off.

Of particular relevance to this sub-task is the research work<sup>xviii, xix</sup> carried out for the UK Ecosystem Markets Task Force, which included the identification of enabling actions and priorities for further research, in relation to the most promising business opportunities.

The Commission provides support for innovation through a series of initiatives and actions aimed at providing financial support to innovators, as well as better innovation support services for SMEs, notably start-ups, by developing and testing new forms of business support and facilitating transnational cooperation with a view to mobilising more resources for the creation of a European Innovation Space.<sup>xx</sup>

DG Enterprise and Industry has supported this aim through the CIP financial instruments, through policy cooperation under the PRO INNO Europe initiative, partnership platforms between European innovation professionals under Europe INNOVA and through the IPR Helpdesk that provides assistance on intellectual property issues for EU funded projects.<sup>xxi</sup> A new Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME) will run from 2014 to 2020, with a planned budget of €2.3bn. This will facilitate access to finance for SMEs, create an environment favourable to business creation and growth, encourage an entrepreneurial culture in Europe, increase the sustainable competitiveness of EU companies, and help small businesses operate outside their home countries and improve their access to markets. COSME will ensure continuity with initiatives and actions already undertaken under the Entrepreneurship and Innovation Programme (EIP), such as the Enterprise Europe Network, building on results and lessons learnt.<sup>xxii</sup>

The EC also supported innovation through the seventh framework programme for research and innovation (2007-2013) and this support for innovation has been substantially enhanced under the Horizon 2020 programme (2014-2020).<sup>xxiii</sup> A new dedicated SME Instrument aims to fill gaps in funding for early-stage, high-risk research and innovation by SMEs as well as stimulating breakthrough innovations.<sup>xxiv</sup> It is expected that through this integrated strategy around 15%, or €6.8 billion, of the total combined budgets of the 'Tackling societal challenges' Specific Programme and the 'Leadership in enabling and industrial technologies' objective will be devoted to SMEs. It will be important, in terms of delivering the EU Biodiversity Strategy, that a significant proportion of this funding goes to SMEs focussed on innovations for nature and biodiversity. Workstream 2 can make a useful contribution in this regard in helping to identify opportunities to develop promising ideas and innovations which might take up Horizon 2020 funding.

### 2.3.2 Suggestions for research needs from B@B members

Most of the submissions received from B@B Platform members made suggestions in relation to research needs in support of innovations for business and biodiversity. These are outlined below.

#### Innovations for green infrastructure

B@B members identified in their submissions the following research needs in relation to innovation for green infrastructure:

- **RGV** (case 6): research on the legal frameworks, in EU member states, relating to freehold/leasehold, to explore the opportunity to replicate the model outside the Netherlands. Also, innovation support for piloting, scaling up and market replication in other EU member states.



- **Green4Cities** (case 12): research is needed to address technical as well as feasibility considerations for urban green infrastructure (green walls, roofs, etc). Strategic partnerships should be spun out of technical research in areas such as microclimatic effects on biodiversity, and guidance could be produced for municipalities. E-learning tools could be developed to support educational programmes and awareness raising.
- **Shell** (case 16): research and innovation to identify new partners and support further pilots for a variety of GI initiatives.

#### Innovation for ecological restoration

B@B members identified in their submissions the following research needs in relation to innovation for ecological restoration:

- **Ibero-rest** (case 4): research on biodiversity offsetting as an emerging opportunity to finance ecological restoration, including costs and benefits for various stakeholders, and support for innovation including pilots, scaling-up, and market replication.
- **Tractebel Engineering (GDF Suez)** (case 8): support for further innovation in relation to 'temporary nature', through additional pilot projects.
- **VICAT** (case 17): research on new technologies to facilitate restoration, reforestation, cleaning of water and waste treatment.
- **SAR Consult** (case 20): development of recognized indicators for ecological restoration; research into the value of ecosystem services provided by restored or well functioning rivers; research into financing restoration with special earmarked funds or PPP.

#### Innovative tools and standards for natural capital and ecosystem services accounting and management

B@B members identified in their submissions the following research needs in relation to innovative tools and standards for natural capital and ecosystem services accounting and management:

- **Landmarc** (case 5): research needs in support of the natural capital decision support tool include scoping and accessibility of relevant datasets. Support for further technical development of the tool including the incorporation of change in natural capital quantity and quality over time.
- **URS/National Grid** (case 10): further research is needed on how to incorporate in the Excel-based tool a range of ecosystem services which have proved difficult, such as flood risk, soil quality regulation, and health benefits.
- **AmBioDiv** (case 11): further research on valuation of biodiversity and ecosystem services at the individual property scale, and on translating larger-scale valuations to the property scale, to support biodiversity action planning at this scale.

#### Innovation for biodiversity offsetting

One B@B member identified in their submissions the following research needs in relation to offsetting:

- **The Environment Bank Ltd** (case 1): Considerable research has already been carried out by DG ENV and by the UK government and others. This includes studies on habitat banking and demand and supply at EU level, and on the costs and benefits to developers (for UK government). There is a critical need however for support for further research and innovation for offsetting, including research on demand and supply in individual EU member states, research on costs and benefits for various sectors





(developers, landowners, etc.), and in particular innovation support for demonstration actions, pilots, scaling-up and market replication.

### Knowledge platforms for innovation

- **Platform BEE** (case 7) suggests that cost-benefit analyses of green infrastructure measures should be prioritised. For example, the platform is convinced that a Room for the River approach (large scale restoration of natural habitats all along a river) is beneficial for water safety as well as for a range of economic sectors (shipping, agriculture, recreation, drinking water supply, process and cooling water supply for industry, etc.).

### Innovations for recycling

B@B members identified in their submissions the following research needs in relation to innovations for recycling:

- **ECNC** (case 18): The support of the EC in providing seed funding for the replication and up-scaling of effective projects for the recycling of marine litter would be of clear benefit, demonstrating positive results and acting as a catalyst for change.
- **Interface/ZSL** (case 21): assessing, researching and piloting how Net-Works can be adapted for the EU markets.

### Harnessing ethical investment for pro-biodiversity business

B@B members identified in their submissions the following research needs in relation to innovations for harnessing ethical investment for pro-biodiversity business:

- **Fieldfare International Ecological Development** (case 2): research needs include: (a) determining the best harvesting rotation for reed beds in different types of locations; (b) best harvesting periods to reduce chlorine and ash content; (c) improvements in pelleting machinery, which is mainly designed for wood pellets, to use other biomass sources.

## 2.4 New business models

### 2.4.1 Context and background

The work of TEEB and others<sup>xxv</sup> has identified a range of new business models that help to conserve biodiversity. Much of this tends to be global in scope with an emphasis on new models emerging in relation to areas of high biodiversity in developing countries, rather than having an EU focus.

Research work for the UK Ecosystem Markets Task Force included a paper on business models, which stated: *“Commercial imperatives very often drive companies to dismiss the external impacts of their businesses, including in relation to environmental and ecosystem impacts. A range of pressures reinforces this situation, including those coming from investors (for profit maximization) and from consumers and clients (unwilling to pay more and absence of demand). New approaches for securing business growth and competitiveness can work with and around these countervailing pressures, for example through efficiency gains that cut costs through saving resources. This is, however, often not sufficient to meet some of the challenging goals that lie ahead... With this in mind, further innovation and the development of new business models is urgently needed. This is not least due to the limits of what can be achieved through legislation as the principle driver of change. While frameworks from government are vital, it will also be necessary for businesses to change. Ideally, both would work together, with policy-makers sending broad and clear signals, while at the same time working in new ways of within markets.”*



Some of the new business models emerging fall within the area of social enterprise. The specifications for the current study refer in particular to ‘benefit corporations’, for-profit entities which consider society and the environment in addition to profit in their decision-making processes.<sup>xxvi</sup> They are an expression of a new approach to economics (the ‘New Economy’<sup>xxvii</sup>), which prioritises the wellbeing of people and planet. There are analogous for-profit ‘social enterprise’ models addressing the environment, emerging here in Europe. As stated in the EMTF study: “...social enterprise models might offer scope for new approaches toward business involvement in ecosystem conservation, although these kinds of structures are not necessarily any more suitable for this purpose than more traditional ones, excepting that they might liberate their operators from some of the pressures that come with more traditional and primarily commercially-driven models. Such models might be effectively harnessed if linked to a clear market opportunity.”

At the EU level, the report ‘*Financing Social Impact*’ – which includes social impact through environmental services – maps a way forward for the funding of social innovation in Europe, including for businesses (for-profit social enterprise).<sup>xxviii</sup> There is wide experience of supporting for-profit social enterprise in Europe that can be drawn upon,<sup>xxix</sup> informed by knowledge of how this is playing out in relation to innovations for nature and biodiversity.

#### 2.4.2 B@B member views on opportunities to develop new business models

The focus of the Commission’s interest here is on new models such as ‘social enterprise’ and ‘benefit corporations’, of the kind outlined in Corporation 2020. While none of the case studies submitted could be defined as social enterprise models, many of the cases submitted present innovative models, which deliver returns on natural capital, social capital and human capital, in addition returns on investment. Many of these identify barriers to development, and potential actions to accelerate uptake.

*Note:* We do not consider opportunities to foster ‘innovative tools and standards for natural capital and ecosystem services accounting’ below, as we do not consider these tools and standards themselves to be ‘new business models’.

#### Innovation for green infrastructure

Members of the B@B Platform have suggested the following opportunities to develop their new business models relating to green infrastructure:

- **RGV** (case 6) suggest their business model, which develops areas for nature in association with the development of recreational sites has good potential for growth in the EU. Opportunities include transferring recreational facilities owned by the public sector to private sector operators applying this business model, and servicing a rising demand for recreation areas in new Member States. There may be a need to adjust regulatory frameworks to enable this business model.
- **Suez environnement** (case 9) suggest the ‘ZHART’ business model for the construction of artificial wetlands for wastewater treatment, while developed for French climatic conditions, could be adapted to climatic conditions across the EU. This would be enabled by stronger regulations on micro-pollutants in effluents, stronger regulations on the environmental impacts of wastewater plants, and support for a European programme of wetland restoration.
- **Lafarge** (case 15) suggest its partnership model (involving a town council, a social property developer, architect and design offices, and Lafarge) for the construction of communal garden spaces for high-density urban apartments could be replicated more widely but will require a more flexible approach by regulators and the engagement of suitable partners.
- **Shell** (case 16) suggests the use of reed beds for water treatment, in particular, could have wide application across the EU. There is a need to overcome lack of awareness, engagement and analytical capacities. Up-scaling could be enabled by the development

of common standards and environmental-economic analytical tools as a catalyst to build capacities and transfer of knowledge between projects.

### Innovation for ecological restoration

Members of the B@B Platform have suggested the following opportunities to develop their new business models relating to ecological restoration:

- **Heidelberg Cement** (case 3) suggests there is a huge potential market for development of its business model of collaborative work with NGOs for biodiversity management at mining and extraction sites across Europe. Local funding could enable this.
- **Ibero-rest** (case 4) suggest opportunities to up-scale its business model for ecological restoration include the development of regulated markets for compensation of impacts on nature, and general government support for restoration ecology.
- **Tractebel Engineering (GDF Suez)** (case 8) suggests there is a substantial amount of undeveloped industrial land across Europe offering substantial potential for expansion of its 'temporary nature' business model. A key enabling action is the provision of legal certainty for the developer that 'temporary nature' may subsequently be removed. It will also be important to engage and educate the public about the benefits of temporary nature, to avoid negative publicity when it is subsequently removed.
- **VICAT** (case 17) suggest the potential to develop its model for quarry restoration is constrained by differing regulatory frameworks across the EU, and a lack of knowledge among decision-makers. They suggest building knowledge and sensitivity to the opportunity among decision-makers (both industrial and public sector), sharing of experience, benchmarking networks, and simplification of the regulations governing biodiversity management on industrial sites.
- **SAR Consult** (case 20) identifies considerable potential for up-scaling of its river and wetlands restoration business model with a key driver being the Water Framework Directive, and the poor ecological status of many rivers. They identify a need to promote farming methods adapted to functional rivers, and for public-private partnerships. Further, SAR Consult sees opportunities for greater uptake of green infrastructure by public authorities managing land and water.

### Innovation for biodiversity offsetting

- **The Environment Bank Ltd** (case 1) note that various studies have identified a very substantial potential market for biodiversity offsetting/compensation in the EU. The company suggests a number of ways to up-scale its business model for brokered, third party compensation. The key requirement is a regulatory framework for development that: (i) ensures rigorous and consistent environmental accounting to demonstrate no net loss (and ideally net gain) of biodiversity; (ii) requires avoidance, mitigation or compensation of all impacts; (iii) encourages innovative (third party, market-based) mechanisms to ensure efficient and effective delivery of habitat compensation schemes. An important opportunity to support such up-scaling is provided by the forthcoming EU No Net Loss Initiative and by the Natural Capital Finance Facility.

### Innovations for recycling

Members of the B@B Platform have suggested the following opportunities to develop their new business models relating to recycling:

- **ECNC** (case 18) suggest there is substantial potential to expand its business model for the recycling of discarded fishing nets to seas across the EU. Up-scaling could be



catalysed by regulatory requirements for the recycling of fishing gear and other marine litter, sharing of best practice solutions, and EU seed funding.

- **Interface/ZSL** (case 21) similarly suggest there is very substantial potential to up-scale community-based initiatives to recycle discarded fishing nets, noting that 640,000 t of nets are discarded annually. There is also opportunity to expand the model to encompass other types of plastic abandoned in the seas (PET, HDPE, etc.).

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- **Fieldfare International Ecological Development** (case 2) suggests there is potential to increase reed pellet biomass production from 25000 t/year to 500,000 t/year in the lower Danube alone. The wider uptake of such pellets requires the development of quality standards for pellets allowing consumers to select reed or wood pellets according to purpose. Reed pellets also have potential as a biofuel and as litter for cats and horses.

## 2.5 Incentivizing innovation

The above findings reveal how a number of companies are innovating to create business value while protecting and enhancing biodiversity and ecosystems. Some of this has been via new business models and novel business vehicles, while other innovation has occurred through more familiar business activities and corporate structures.

In drawing out themes that cut across the diversity of possible actions in ways that might inform strategies to encourage more innovation and at greater scale, a number of headings emerged from this review and other recent learning.

One is the importance of awareness and the extent to which companies know that there might be ways to generate more value through doing things differently. This is a broad point and relates to a wide range of factors that determine what executives know and what they are prepared to act upon.

This in turn is determined by for example the networks and information flows that decision-makers are embedded within and the values and general knowledge that drive their day-to-day behaviour. Some of the recent innovation seen among companies has been taken forward by people motivated by 'green' priorities. This will continue to be a driver for innovation but would undoubtedly be augmented if clearer business cases were visible to those who are less motivated by biodiversity or sustainability questions.

Sound business cases arise in different sectors through different factors but generally include a range of risk management, reputational and market opportunity benefits. These are, in turn, shaped by a range of consumer, technological and policy drivers, all of which can in different ways be made stronger so as to make business cases more compelling.

Even with these factors lined up in more favourable ways it is clear that first-mover companies taking action in this space have been in large part driven by internal leaders, often the organisation's chief executive. The role of leaders cannot be underestimated, especially since innovation is by definition about doing new things and thus in some large part based upon experimentation and taking calculated risks. Finding ways for such individuals to inspire peers can be a powerful driver for innovation, although this can be challenging given that competitiveness issues can sometimes emerge, especially between companies in the same sector.

Experience from some companies also suggests how leadership in harnessing innovation is not only about senior executives 'doing the right thing' but also about the extent to which they can encourage creativity through for example encouraging cross-disciplinary working with, for example, ecologists and engineers undertaking co-design of green infrastructure.

Having said this there are of course various steps that can be taken by policy makers in encouraging innovation. Considering the examples reviewed here, and experience seen elsewhere, it is clear that policy-making to encourage innovation will often be qualitatively



different to that which has historically been crafted for compliance against environmental standards and laws.

In this review these steps include official efforts to spread awareness about best practice. Another relates to the establishment of common minimum standards to determine good practice, for example in relation to green infrastructure. Another set of opportunities exist in relation to the fostering of partnerships while further steps can be taken through links being made between different policy agendas, for example through linking biodiversity conservation and climate change adaptation.

There are also opportunities to create new market rules, for example for restoration ecology, environmental accounting and offsetting, in ways that generate new incentives for innovation. Encouragement for public-private partnerships and cross-sectoral coordination between for example farm and water policy could bring new opportunities.

All of the above is in the end about making a clearer and more compelling business case for action and making that visible to more companies.



### 3 Next steps

The following are some preliminary suggestions for further work on the Innovation Workstream. These will be discussed with B@B Platform members, observers and representatives and year 2 tasks will be finalised with the B@B Bureau.

1. **A broader and more exhaustive review of innovation for business and biodiversity in Europe**, extending beyond the relatively small set of case studies, including a quick and dirty assessment of each area of innovation in relation to the scale of opportunity for business, scale of potential benefit to nature, ease and practicality of implementation including barriers, in order to identify a more robust set of 'most promising' opportunities.
2. **A deeper analysis of the 'most promising' opportunities (identified by 1, above) related to innovations for business and biodiversity**, involving an analysis of economic case (costs, benefits, impacts) for each innovation, taking in to account the scale of the opportunity for business, the scale of the potential benefit to nature, the ease and practicality of implementation (including barriers), enabling actions required, and options for progressing the opportunity.
3. **Assessment of key regulatory developments needed at EU level** to foster the most promising innovations for business and biodiversity, which may involve deregulation, amendment of regulation, or new regulation.
4. **More detailed assessment of opportunities to develop social enterprise models** for business and biodiversity in the EU (as these are not well reflected in the cases submitted).
5. **Assessment of how to develop public-private partnerships and other partnership models** to scale up most promising innovations for business and biodiversity.
6. **Assessment of key standards and tools that could be developed at EU level** to foster most promising innovations for business and biodiversity.

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