EKLIPSE
Knowledge & Learning Mechanism
on Biodiversity & Ecosystem Services

Developing a mechanism for supporting better decisions on our environment based on the best available knowledge.

EKLIPSE Document of Work: SME regulation request (Improving biodiversity outcomes of business)

Content:

GENERAL INFORMATION

Topic of the request (see original request below):

How can environmental regulators support businesses to improve the outcomes of their operations for biodiversity, with a focus on small and medium-sized enterprises in the food and beverage sector in Europe?

This request was initially put to EKLIPSE by the Scottish Environment Protection Agency (SEPA). In order to refine the request, scoping activities have been carried out :

a. Call for Knowledge in order to identify already existing work on the request and
b. Evaluation of the policy and stakeholder relevance via bilateral telephone interviews, personal meetings and email requests to ensure the policy relevance of the request detailed below and to refine the request.

This document of work describes the results of the scoping activities as well as the background of the request and is the basis for the call for experts.

Requesters: *Louise Bond & Nicola Melville – Scottish Environment Protection Agency (SEPA)*
Date request received: *28/10/2016*
Date of first meeting with requesters and EKLIPSE KCB and methods experts: *02/02/2017*
Expected deadline for deliverables: *final deliverables are due 30/10/2018*

BACKGROUND AND CONTEXT OF THE CALL

Improving biodiversity outcomes of businesses

Biodiversity loss is one of the biggest challenges that we are facing and many species and their habitats as well as ecosystems which provide essential ressources for human nutrition and well-being are threatened by human activities.[1] Businesses are increasingly aware of their dependencies upon biodiversity and ecosystem services, taking this into consideration as the natural capital of their business operations, e.g. raw materials such as cotton or coffee. Despite this growing recognition, practical approaches for businesses to understand and manage their impacts on natural capital across their supply chains are lacking[2].

Improving biodiversity outcomes of businesses span over a multitude of approaches from regulation, to standards, voluntary and market based approaches. It is essential, however, to understand and evaluate how effective the various approaches are in changing employee mindsets, company culture and customer behaviour. Some initiatives and projects are starting in this field, most notably the Natural Capital Protocol, a standardized framework to help businesses identify, measure, and value their impacts and dependencies on natural capital and ultimately to apply the results of natural capital accounting into their existing operations. To facilitate the implementation of the protocol, sector guides have been published, initially for the food and beverage and apparel sectors.[3] Other examples include a project on Natural Capital Markets providing guidance for business and other stakeholders (http://www.naturalcapitalmarkets.org/startseite/) and AgoraNatura, which aims to provide a marketplace for ecosystem services in the furture (http://project2.zalf.de/AgoraNatura/). In addition, the European Commission hosts a Business @ Biodiversity Platform providing a forum for dialogue and policy interface to discuss the links between business and biodiversity at EU level with the aim to work with and help businesses integrate natural capital and biodiversity considerations into business practices. In particular the innovation workstream aims to promote innovations that contribute to nature protection by sharing best practices of innovative companies and business models and identifying opportunities for fostering new business models.[4]

Potentials of improving biodiversity outcomes of businesses span over a multitude of approaches from regulation, over standards to voluntary and market based approaches. It will be very useful to understand and evaluate how effective the various approaches are in changing employee (and customer) behaviour and mind-set and ultimately company culture.

Thus far, the most effective tools appear to be triggered by drivers external to businesses and self-regulation remains difficult. These multiple influences on the environmental performance of businesses include[5]:

- Consumer demand for environmental credentials.
- Investor requirements for environmental performance.
- Supply-chain requirements for environmental performance.
- Assessment by external ratings bodies (e.g. CDP2, DJSI3).
- Trade association membership standards.
- Expectations of potential employees about environmental performance.
- Social scrutiny (e.g. residents, NGOs) and via social media (e.g. Twitter).

For example, labelling can be a powerful and particularly effective tool to go beyond regulation (compared to other approaches), because it is third party hosted. Labels and standards can also be powerful marketing tools, businesses thus responding to consumer preferences. Furthermore, finance can play a huge role in influencing business behaviour, e.g. the EIB standard or Multinational Development standards.

As a result, with the exception of a few committed forerunners, the majority of businesses stick to business as usual. In fact many companies might not have the time, capacity and/or interest to get engaged.

Scope: large muli-national businesses vs. SMEs

While the starting point is on business in general, practical experiences shall be narrowed down to small and medium-sized enterprises (SMEs) in the food and beverage sector in Europe. These can have important implications on water/land management. Large multi-national businesses may have the necessary resources and knowledge to go beyond environmental regulations, whereas small and medium-sized enterprises (SMEs) may require more support in understanding, selecting, and implementing mandatory and voluntary approaches to enhance environmental sustainability.

Thus, SMEs are in particular need for need for incentives and resources to cover initial investments and initial losses. For example organic farming means more regulations, restrictions and costs (e.g. the organic certification and controls organic farmers are obliged by law to do). Furthermore, for SMEs there may be a competitive issue with sharing innovative best practice (if this is then picked up by larger companies who use and brand it). Despite these particularities of SMEs it is nonetheless important to follow how forerunners among multi-national businesses measure and justify their actions. The very same arguments and measures can work in inspiring or enforcing SMEs.

Sector: Food and beverage

The conservation and sustainable use of biodiversity is the prerequisite for agriculture and food supply, because on the one hand they rely on healthy ecosystems and natural resources for production and on the other hand they are having a great impact on biodiversity as is described in the interim report TEEB for Food & Agriculture (2015). Most notably, intensified consumption patterns in industrialized countries and emerging economies, a growing demand for food and beverage products and an increasingly globalized food market have led to the vast exploitation of agricultural land, highly intensive production systems and dramatic biodiversity loss through land-use change, overexploitation, pollution and introduction of invasive alien species.[6]

Nonetheless, agriculture and food production in Europe has two sides: while it is one of the main drivers of biodiversity loss, it also provides the basis for many ecosystems and species of the historically grown cultural landscape.[7]

In addition to the high land use pressure, in Europe and along global supply chains, the complexity of biodiversity and the complexity of interactions and impacts across the supply chain of a food product (see Figure 1), render the reduction of adverse biodiversity impacts and thus improving biodiversity outcomes of business operations in the food and beverage sector very challenging.

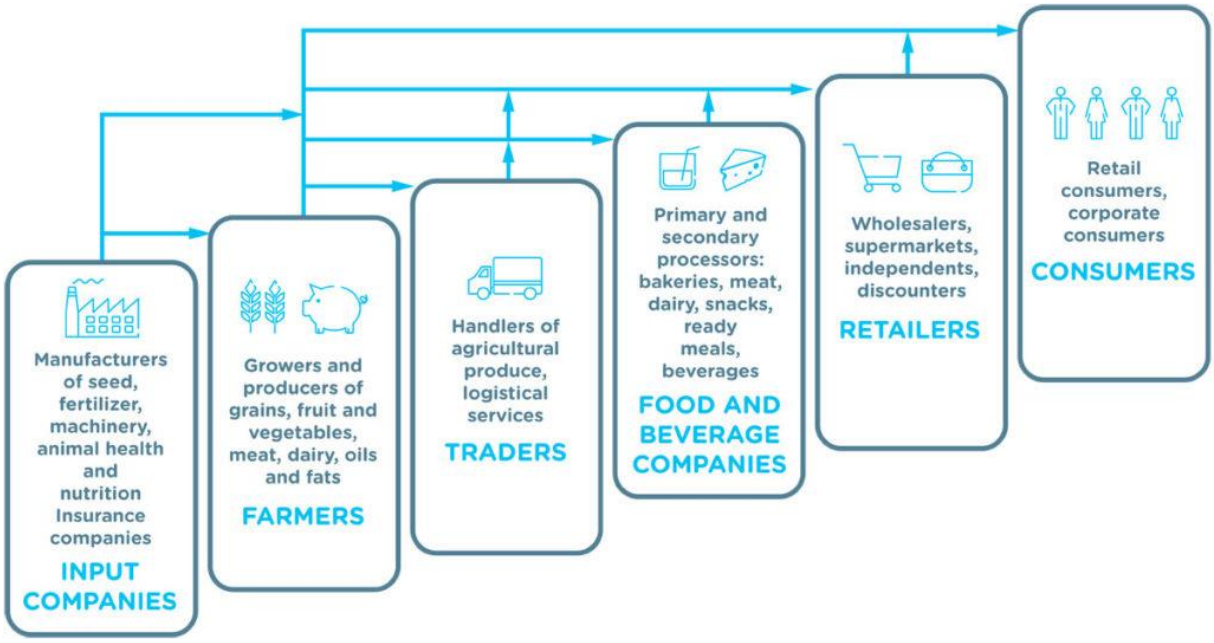


Figure 1 : The food and beverage supply chain[8]

First attempts to tackle this challenge have been made and a range of analytical approaches exist, like TEEB in AgrifoodSector, iPES-Food research and recommendations on sustainable food systems and also (emerging) tools for the assessment, accounting and valuation of biodiversity and natural capital by business, notably the Natural Capital Protocol and the already mentioned sector guide for food and beverage, as well as an ongoing EU LIFE Project, led by Global Nature Fund, on "Biodiversity in Standards and Labels for the Food Industry". The main objective of this project is to improve the biodiversity performance of standards and labels within the food industry, by supporting standard organizations to include efficient biodiversity criteria into their schemes; and motivating food processing companies and retailers to include biodiversity criteria into their sourcing guidelines. This includes the application of a biodiversity performance tool to assess the quality of the implementation, pilot projects as well as capacity building and training of both certifiers/auditors and product managers of businesses, and finally establishing a monitoring system. Within the framework of the project, thus far 54 standards and food labels have been evaluated for the biodiversity criteria they use and the results are published in a Baseline Report[9].

Role of government

Government organisations and regulators can have a key role in helping businesses operate in a more sustainable, yet still competitive, manner. The Scottish Environment Protection Agency (SEPA) who issued this request, is working to implement their new regulatory strategy 'One Planet Prosperity', which summarizes the agency's vision for ways they can work with Scottish businesses to enhance environmental sustainability[10]. SEPA would like to find out which approaches they and other European regulatory agencies could use when working with businesses to achieve this vision, from traditional compliance with environmental standards, to going beyond compliance, and encouraging and promoting voluntary participation.

This raises the question how environmental regulators can complement or work together with private sector initiatives (e.g. the German Biodiversity in Good Company). Some of the most powerful drivers and obstacles and intervention options for sustainability, relate to a range of actors relevant on the often many stages "from farm to fork". Therefore, consumption patterns and lifestyle choices by consumers, procurement, trade and competition rules, and overall the way all parts of the value

and supply chain interact or offer opportunities for interventions, can have a significant influence on business behaviour.

From the point of view of regulators, a good starting point to "go beyond regulation" could be to start with their own public procurement.

Challenges

Improving biodiversity outcomes of businesses faces a number of challenges that the EWG may take into consideration:

- Government agencies and others need to **communicate** with businesses in their own language and with a good understanding of their business operations and supply chains.
- Temporal aspects need to be taken into consideration, both with regard to anticipating and piloting future regulation (what may be a standard today, may become a regulation tomorrow) and the **longevity** of any biodiversity improvements (people want immediate results, but how effective are things in terms of long-term biodiversity outcomes?)
- To start to pull together a **database** and data collection method to evaluate the biodiversity impact of businesses (both large and SME) is vital. Most businesses face the problem that they don't know where their products/raw materials come from and which risks or threats may be associated with them, thus data on the provenance of raw materials would be needed to be aware of risks that arise along the supply chain.
- It would be interesting to reflect on the **level** at which a measure or approach would work best – sub-national, national or EU (e.g where a level playing effect is important). This question of scale also refers to what is relevant on the market in the food and drink retail industry, e.g. mostly global standards that reach many businesses vs. regional initiatives and influences.
- Ultimately, with regard to the **target group** for biodiversity improvements of business operations two different strategies could be used : 1) Innovation leverage for businesses to go beyond regulation (i.e. pilots, first movers) or 2) mainstreaming the variety of existing approaches beyond the minority of already committed businesses.

REFINED REQUEST QUESTION

Formulation of the original request:

What are the advantages and disadvantages of existing approaches that environmental regulators can use to enhance environmental sustainability and improve outcomes for biodiversity of small and medium-sized enterprises in the food and drink sector of Europe?

The final formulation of the request after scoping:

How can environmental regulators support businesses to improve the outcomes of their operations for biodiversity, with a focus on small and medium-sized enterprises in the food and beverage sector in Europe?

SUGGESTED PROGRAMME OF WORK AND METHODS

EKLIPSE has created an expert working group (EWG) to assess and synthesize relevant knowledge related to approaches environmental regulators can use to support businesses to improve their out-

comes for biodiversity, with a focus on small and medium-sized enterprises in the food and beverage sector in Europe.

This request aims to review literature, collect case studies and lessons learned to capture the variety of approaches used (or potentially being used) to enhance biodiversity outcomes of businesses in general and SMEs in particular, with a view on the different hindering or fostering (context) conditions, factors to success or challenges (i.e. an analysis of what has worked or not worked from a business perspective, why and how). From a stakeholder perspective this means responding to two expectations: first, showing that these approaches worked and how, and second, to point out the added value compared to business as usual.

The EWG supported by the EKLIPSE Team will review, collect and communicate the best available knowledge applying a structured step-wise approach in comprehensive identification of the existing research evidence. This is based on the following tasks and the indicated potential methods:

Task 1: Define a rough framework of approaches and their effectiveness

- What approaches can improve biodiversity outcomes of businesses?
- How do we know these approaches work / are effective in improving biodiversity outcomes and over what timeframe, i.e. regarding accounting for biodiversity impacts, identifying the most relevant parts of the value chain, and keeping track of interactions across complex value chains?

Goal : *providing a systematic overview of approaches that regulators could potentially use*

Suggested methods: *Task 1 is about setting the scene and framing the problem with respect to possible approaches, it concerns « agenda setting » within the policy cycle and should use exploratory methods, without going into too much detail on exact causal relationships, i.e. more stocktaking than understanding how and why approaches are selected. Therefore a* ***Non-systematic Literature Review*** *(or* ***Quick Scoping Review****) could be the very first step to do a* ***Solution Scanning*** *of approaches that environmental regulators can use to improve outcomes for businesses. To complement the list of solutions a* ***Delphi process*** *could be applied.*

Task 2: Identify the most promising approaches to be used by regulators

- What are the advantages and disadvantages of existing (and potential) approaches?
- Which of the approaches identified in task 1 are most promising to be used by regulators?

Goal : *providing a comprehensible and expedient choice of approaches from task 1 for further in-depth analysis in task 3*

Task 3: Analyse under which conditions the chosen approaches work well

- Which of these approaches work well under which conditions?
- This shall take into account different perspectives and can include for example the following conditions:
    - conditions related to the national policy and legal context (e.g. do integrated food policies as recently developed in some EU countries help to have a more holistic approach?),

- conditions related to the specific scheme (different standards, governance schemes),
- conditions related to corporate natural capital management practice, culture and mind-set,
- conditions related to the socio-economic context, e.g. structure and interactions within the entire market chain, consumer awareness and choices, and
- conditions related to the level of trust and partnership between the private and public sector.

Suggested methods: *For tasks 2 & 3, a framework is required for assessing the « effectiveness » of the different approaches both with regard to different criteria (for the outcomes such as biodiversity, other sustainability indicators, feasibility, costs, etc. conditions such as planning environment, culture, …).*

Therefore, a ***Multi-Criteria-Analysis*** *may be best suited to deal with this task. Furthermore, we suggest to build on existing frameworks and complement it again with* ***expert consultations*** *or* ***focus groups*** *as « intermediaries » what could also be a good source for seeking people's understanding.*

While all three tasks are consecutively building on the previous one, the major emphasis of this knowledge synthesis is on task 3 and the development of practical recommendations for environmental regulators.

REFERENCES

[1] *European Commission (2015a): The State of Nature in the European Union, COM(2015) 219 final ; European Commission (2015b): The Mid-Term Review of the EU Biodiversity Strategy To 2020, COM(2015) 478 final ; Biodiversity in Standards and Labels for the Food Industry, Baseline Report (April 2017).*

[2] *University of Cambridge Institute for Sustainability Leadership (CISL). (2016). Biodiversity and Ecosystem Services in Corporate Natural Capital Accounting : Synthesis report.*

[3] *Natural Capital Coalition. 2016. « Natural Capital Protocol – Food and Beverage Sector Guide ».*

[4] *European Commission. 2017. EU Business @ Biodiversity Platform. http://ec.europa.eu/environment/biodiversity/business/index_en.htm*

[5] *Scottish Environment Protection Agency. 2016. One Planet Prosperity – Our Regulatory Strategy.*

[6] *Biodiversity in Standards and Labels for the Food Industry, Baseline Report (April 2017) ; Natural Capital Coalition. 2016. « Natural Capital Protocol – Food and Beverage Sector Guide ».*

[7] *Biodiversity in Standards and Labels for the Food Industry, Baseline Report (April 2017).*

[8] *Trucost. 2016. Environmentally extended input-output (EEI-O) model ; Natural Capital Coalition. 2016. « Natural Capital Protocol – Food and Beverage Sector Guide ».*

[9] *Biodiversity in Standards and Labels for the Food Industry, Baseline Report (April 2017).*

[10] *Scottish Environment Protection Agency. 2016. One Planet Prosperity – Our Regulatory Strategy.*

ANNEX 1: Context and specification (First version of the DoW)

Context and justification

While large multi-national businesses may have the necessary resources and knowledge to comply with environmental regulations, small and medium-sized enterprises (SMEs) may require more support in understanding, selecting, and implementing mandatory and voluntary approaches to enhance environmental sustainability. Government organisations and regulators have a key role in helping SMEs operate in a more sustainable, yet still competitive, manner. SEPA is working to implement their new regulatory strategy 'One Planet Prosperity', which summarizes the agency's vision for ways they can work with Scottish businesses to enhance environmental sustainability. SEPA would like to find out which approaches they and other European regulatory agencies could use when working with SMEs to achieve this vision, from traditional compliance with environmental standards, to going beyond compliance, and encouraging and promoting voluntary participation. It will be very useful to understand and evaluate how effective the various approaches are in changing employee (and customer) behaviour and mind-set and ultimately company culture.
Focussing on SMEs in the food and drink sector, which can have important implications on water/land management, this request aims to review literature, collect case studies and lessons learned to identify available approaches that can help foster environmental sustainability for SMEs, and an analysis of what has worked or not worked from an SME perspective, why and how?

What is the spatial scale of the request?

EU

Which specific interventions are of interest here?

How narrow could the question get before it stops being policy-relevant?

Very broad (covers many possible responses or more than one policy area)

"In its widest application this research is relevant to all environmental regulators with a requirement to enhance and protect biodiversity" (lines 30-31)

The interest is in providing lessons learnt and available knowledge for environmental regulators when selecting approaches to use when working toward enhancing environmental sustainability of particular types of food and drink SMEs. Available approaches range from compulsory environmental compliance (i.e., regulations that set environmental limits) to voluntary agreements (e.g. Sustainable Growth Agreements, eco-labelling, certification, biodiversity offsetting measures, landscape approaches such as the 'green deals' in the NL).

What are the objectives of the interventions and how can the outcomes of the interventions be measured/ determined?

The overarching objective is to enhance environmental sustainability of food and drink SMEs in Europe. This can be measured as changes in selected indicators representing ecosystem services and benefits delivered back to society as a result of more environmentally sustainable management being used to produce the food and drink products being sold by the SMEs. If environmental regulators use better approaches when working with particular food and drink SMEs, this should lead to more environmentally sustainable business practices. For example the percentage of agricultural land being managed organically should increase, which should in turn lead to improved biodiversity and ecosystem services. Another example is high percentage of hired land or use for bioenergy fuels which might indicate a decrease in sustainability. In addition to quantifying benefits to ecosystem

services and biodiversity, useful to understand how different approaches influence behaviour change and attitudes to company environmental sustainability.

Over what time horizon does the question recur?

May recur in the future, at unpredictable times

"To support SEPA in developing its new regulatory framework, this research will help the agency by identifying and evaluating approaches/mechanisms and incentives for regulating businesses in a way which delivers for biodiversity, and the ecosystem functions both people and biodiversity are dependent upon" (lines 60-62)

What is the level of controversy?

"The research will look at whole business operations, (as opposed to one function of that business, e.g discharge of waste water) and recognize the benefits those businesses' derive from ecosystem services and how we may regulate in a way to protect those ecosystem functions and services." (ll 62-65)

Is there Controversy in perception/values/ and/or opinion?

The above process and discussions in the expert group could lead to the development of lessons learned from the literature and case studies to enable environmental regulators to better communicate with and support implementation of sustainable Small and Medium Enterprises in the food and drink sector in Europe.

These lessons learned could then be discussed in one or more workshops with environmental regulators and SME representatives from selected EU Member States to test and evaluate the feasibility and relevance of the approaches compiled in the lessons learned/identified in the literature review/assessment.

What sources of knowledge should be included?

- Scientific
- Indigenous and Local Knowledge (ILK)
- Technical know-how, practical experience, best practices
- Opinions and values

"Flexible, interested to hear about methods deemed suitable. Expect method will involve a range of elements - literature review of policy and papers, discussion (workshop/questionnaire etc.) with regulators/businesses/policy makers" (lines 55-57)

Expert consultation and literature scoping to identify the range of approaches, from environmental compliance to voluntary agreements, available to enhance sustainability and biodiversity conservation of food and drink SMEs in Europe; identify lessons learned from case studies where particular approaches have been applied with certain types of SMEs.

What types of information are useful or acceptable?

- Financial information [economic]
- Qualitative data
- Quantitative data

"The research question is looking to pool evidence of different approaches that can be utilized by environmental regulators to work effectively with business to improve environmental sustainability of

those business operations and improve outcomes for biodiversity. Which approaches work well in other countries, explore case studies, identify the types of incentive and mechanisms employed, discuss lessons learnt, and explore changes in business and individual behaviour which has led to improvements in biodiversity" (lines 41-45)

An interdisciplinary expert working group (EWG) will be established that might carry out the following tasks:

- Identify and review literature on the range of current approaches, from environmental compliance to voluntary agreements, available to increase the sustainability of Small and Medium Enterprises in the food and drink sector in Europe;
- Identify and review literature on the effectiveness (both social and environmental) of these approaches;
- Identify conditions needed to have effective outcomes;
- Identify how these approaches were implemented: e.g. tools and practices used in the dialogue phase between businesses and regulators;
- Identify case studies where approaches have worked, or not, and the reasons why.

Expected outputs (quantitative, qualitative… means, ratios…) - deliverables

1) literature review and assessment of available approaches for environmental regulators to enhance environmental sustainability of food and drink sector SMEs; and 2) guidance for environmental regulators to use when selecting an appropriate approach for certain types of SMEs in Europe.

Possibly Workshop or series of workshops with environmental regulators and SME representatives from selected EU Member States to test and evaluate the feasibility and relevance of the approaches identified in the literature review/assessment

What are the consequences of getting it wrong, original request?

- medium (e.g. a wrong policy/decision can be adapted/adjusted later

- unacceptable (e.g. large economic/political/environmental costs)

"As above, would contribute to shaping policy, education, and ultimately future business operations" (line 83)

Lessons learned can be used to help environmental regulators throughout Europe to communicate with and enhance environmental sustainability of food and drink SMEs.

Time frame of the policy process

8-10 months would be a good start for delivering the outputs, but requester is flexible as quality of outcomes is the most important. SEPA is working towards sustainable growth agreements with businesses (e.g. with the glass industry). The timeframe foreseen would allow the results of the knowledge synthesis to feed into this process.

Final deliverables for requester in two phases

- literature review/assessment (deliverable 1) October 2017

- workshop(s) assessment and guidance document January 2018

ANNEX 2: Call for Knowledge

Dissemination of the call for Knowledge via KNOCK Forum

EKLIPSE is inviting scientists, policy makers, practitioners and other societal actors to share their knowledge on the following request:

What approaches can environmental regulators use to enhance environmental sustainability and improve outcomes for biodiversity of small and medium-sized enterprises (SMEs) in the food and drink sector of Europe and what are the advantages and disadvantages?

What's it all about?

The objective is to identify the range of approaches, from environmental compliance to voluntary agreements, available to enhance sustainability and biodiversity conservation; identify lessons learned from case studies where particular approaches have been applied with certain types of SMEs, and an analysis of what has worked or not, why and how?

This request was submitted by the Scottish Environment Protection Agency (SEPA). As a starting point, therefore you may find it useful to have a look at SEPA's new regulatory strategy "One Planet Prosperity", developing a vision to enhance environmental sutainability of Scottish businesses (see the PDF below).

What do we expect from you?

Please add any information that you think is relevant for the request, and justify its inclusion, e.g. additional information from countries, scales or disciplinary perspectives not covered sufficiently etc.

Please register to the forum (for instructions see the full Call for Knowledge below) and use the comment field below.

For further information on this request as well as the EKLIPSE process see the PDF of the full Call for Knowledge below.

Why should you do this?

If you're not yet convinced of the necessity of enabling policy makers to make better informed decisions based on best available science, you may want to consider the following benefits:

- enhancing usability and relevance of scientific knowledge in general,
- impacting on decison making,
- getting attention for your work in this area,
- network opportunities,
- and potentially many others.

EKLIPSE
Knowledge & Learning Mechanism on Biodiversity & Ecosystem Services

Developing a mechanism for supporting better decisions on our environment based on the best available knowledge.

EKLIPSE is developing a European Mechanism to answer requests from policy makers and other societal actors on biodiversity related issues

More information on the processes and the EKLIPSE project funded by the EU in H2020 is available at ***www.eklipse-mechanism.eu***

CALL FOR KNOWLEDGE FOR INITIAL SCOPING, EKLIPSE – MARCH 2017

Responses most useful before: April 18th 2017

TOPIC:

What approaches can environmental regulators use to enhance environmental sustainability and improve outcomes for biodiversity of small and medium-sized enterprises (SMEs) in the food and drink sector of Europe and what are the advantages and disadvantages?

Invitation to share knowledge for informed decision-making

This request was submitted by the Scottish Environment Protection Agency (SEPA).

Context: Government organisations and regulators have a key role in helping small and medium-sized enterprises (SMEs) operate competitively yet in a more environmentally sustainable way. SEPA is working to implement their new regulatory strategy 'One Planet Prosperity', which summarises the agency's vision for ways they can work with Scottish businesses to enhance environmental sustainability. SEPA would like to find out which approaches and tools they and other regulatory agencies in Europe could adopt when working with SMEs to achieve this vision, from compliance with mandatory environmental standards, to going beyond compliance, and encouraging and promoting voluntary participation. The aim is to understand and evaluate how effective these various approaches, techniques and incentives are in changing employee behaviour and company culture as well as customer behaviour and mind-set, and ultimately improving biodiversity outcomes of business operations.

Focusing on SMEs in the food and drink sector, which can have important implications on land and water management, this request aims to review literature, collect case studies and lessons learnt to

identify available approaches that can help foster environmental sustainability. This will include an analysis of what and why has worked well or not worked from an SME perspective.

EKLIPSE is inviting scientists, policy makers, practitioners and other societal actors to share their knowledge on this specific selected request to explore available resources and evaluate if the request requires a structured knowledge gap analysis and consultation on research priorities.

Completed or ongoing knowledge generation or synthesis particularly on the following aspects are relevant:

1. Identify and review literature on the range and effectiveness (both social and environmental) of current approaches, from environmental compliance to voluntary agreements, available to increase the sustainability of SMEs in the food and drink sector in Europe;
2. Identify how these approaches were implemented: e.g. tools and practices used in the dialogue phase between businesses and regulators on the example of case studies;
3. Identify conditions needed to have effective outcomes.

The final framing of the request is being developed through an interactive dialogue between the EKLIPSE scientists and the requester (Scottish Environment Protection Agency, SEPA), and will be further discussed with stakeholders to ensure relevance for policy making regarding biodiversity and ecosystem services.

We want to explore the amount of knowledge that exists in this area, who the main knowledge holders are and, if after scoping we decide to answer this request, we want to identify the most suitable methodology for answering it.

Please contribute your comments and knowledge/references in the online KNOCK forum.

How to contribute to the Call for Knowledge

All knowledge collected through this call for knowledge will be collected and discussed on the KNOCK Forum. To upload documents and participate in the discussion, please register at our quick and easy 'Keep me Posted' page. Then, please click on the relevant thread to upload your information. Each thread already contains documents that are potentially relevant to the request. We invite you to add any information that you think is relevant for this request, and justify its inclusion (e.g. additional information from countries, scales or disciplinary perspectives not covered sufficiently etc…). Relevant information should be grouped under the following headings: **1) literature reviews, 2) empirical studies/practical experiences, 3) modelling studies and 4) conceptual papers** and can include:

- Links to open access papers.
- Links to published and unpublished grey literature or case studies.
- Description of on-going research projects, or knowledge compilations, expected to deliver results within the next year.
- Your on-the-ground experiences in this field.

Objective of the call and request to be addressed by this call

EKLIPSE coordinates innovative and transparent approaches for science, policy and societal actors to jointly provide the best available evidence leading to better informed decision-making and to identify current and future research priorities. A request on supporting businesses to improve the outcomes of their operations for biodiversity was proposed by the Scottish Environment Protection Agency

(SEPA) to the EKLIPSE call for Request (CfR.1/2016). The objective of this call for knowledge is to launch an initial scoping process on the request meant to identify available assessments, existing studies and other resources.

Background on EKLIPSE

EKLIPSE is an EU-funded project that started in February 2016. With support from the European Commission and a high level Strategic Advisory Board (SAB), the project aims to establish a robust and flexible long-term mechanism for policy support on biodiversity and ecosystem services, communicating and engaging a wide set of knowledge holders and ensuring tailor-made outreach of results to knowledge requesters and society more broadly.

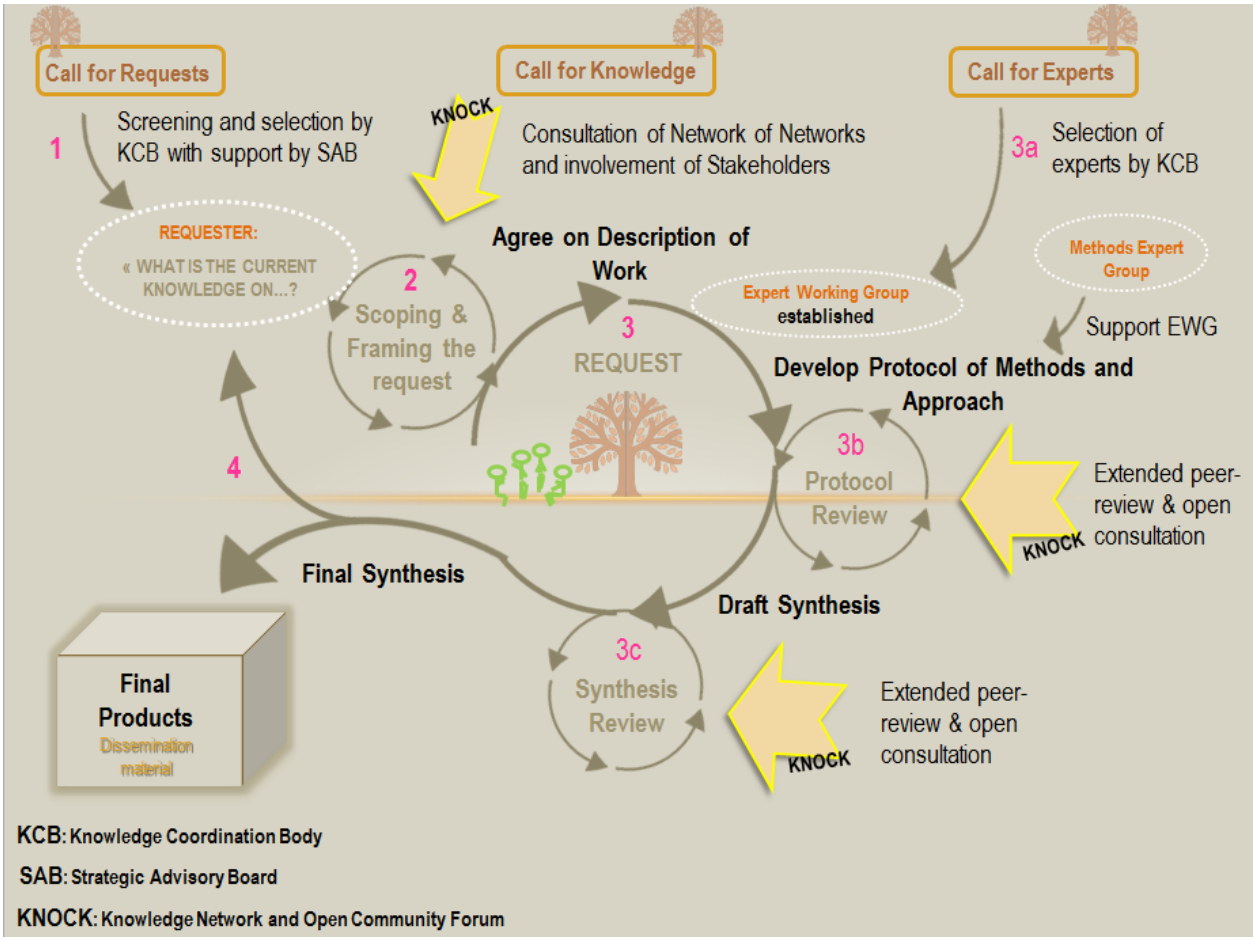
The success of EKLIPSE and its resulting mechanism is in everyone's hands:

- the 'requesters' from policy and society who need to know what knowledge is out there to answer their policy or societal needs;
- the knowledge holders (be they scientists or other citizens) who want their knowledge to mean something; and
- the extensive networks working on biodiversity and ecosystem services who have the enthusiasm and knowledge to make the mechanism work in the long term.

The process: how EKLIPSE answers requests

The EKLIPSE process consists of several steps (see figure below): After the Call for request (step 1), the second step is the Call for Knowledge that supports further Scoping and Framing the request (step2). Based on the findings of the Call for Knowledge, EKLIPSE and the requester discuss how to proceed with the request (step 3). If already sufficient knowledge on the request is available or other reasons exist for not continuing with the request, the request will not be taken further, and the outcome is the collection of knowledge identified in second step. If EKLIPSE and the requester agree on continuing, the request will be framed and finalised jointly with relevant science, policy and societal actors. EKLIPSE then organizes a Call for Experts inviting experts to form an expert working group on the request (step 3a).

The selected expert group will, together with the Knowledge Coordination Body (KCB) and the requester, agree on the methodological approach to be taken for the knowledge synthesis. This will be compiled in a protocol, made publicly available and peer reviewed (step 3b). During the process of gathering, integrating and synthesizing the best available evidence, communication between all relevant actors will be key. Finally, the results of the co-generated evidence will be peer reviewed before being communicated in targeted ways to the requester (e.g., as a report or brief or other output to be discussed with the requester), as well as relevant decision-makers, the knowledge community and the general public (steps 3 c and step 4).



Next steps: How EKLIPSE will continue with this request

If EKLIPSE decides to carry out a new knowledge synthesis based on the responses to this call for knowledge, it will invite experts on the topic to express their interest in joining the Expert Working Group. The expert working group will cover diverse and complementary skills (including multidisciplinary skills and a broad geographical coverage) and will interact with relevant stakeholders to ensure appropriate methodological choices and uptake of outputs.

The Call for Experts will be widely publicized on the EKLIPSE website, on the Forum and other dissemination channels to ensure a broad coverage of disciplines and geography. The selected group will be supported financially by the EKLIPSE project for travel expenses and in certain cases through honorary contracts.

Results of the Call for Knowledge

Approach:

Prior to the Call for Knowledge the EKLIPSE secretariat did a first scoping activity on existing knowledge and literature sources on the above mentioned question, mainly using Web of Science and Google scholar (see ANNEX 6**:** Literature Screening Business Request) for related search term combinations and obtained results).

54 articles have been identified. In order to identify additional existing knowledge on the topic of the request a Call for Knowledge has been published on the KNOCK forum and on the EKLIPSE webpage on the 17th of March 2017. In addition this call was send via email to around 90 experts, networks

representatives from NGOs, EU projects as well as Government related institution. The Call for Knowledge has been also distributed via Twitter and LinkedIn and was published on Research Gate.

There was no deadline for contributing to the Call for Knowledge however it was mentioned in the Call that responses are most useful before April 18th.

Results:
In response to these efforts the responses received through the various communication channels added several other studies or sources (mostly practical experience), leading to a total of 78 sources (see ANNEX 6: Literature Screening Business Request). In addition, the comments delivered important suggestions on restructuring the business request to make it more relevant and accessible for stakeholders.

- **Type of papers:**
  The vast majority of sources are Empirical studies/ practical experiences (60), followed by some conceptual papers, while only a few literature reviews and modelling studies exist. It needs to be mentioned that in some case the classification to these categories was difficult, as some documents fit in more than one category.

Empirical studies/ practical experiences	60
Literature Reviews	7
Conceptual Papers	21
Modelling Studies	3
Total (note that several sources were assigned to two categories)	**78**

- **Regional focus**
  Regarding the regional focus, many sources focus on the UK or related empirical evidence (~20), followed by several sources with a European scope (~10) and a few global ones (~5). The rest are spread to various countries in Europe and worldwide.

Comments on the forum (selected comments on the request and existing knowledge from users of the forum and on ResearchGate):

- *"This might not immediately provide you with an answer as to what existing legislation but may provide you with a frame on how to categorise or identify the various legislation. What our paper does is to theorise the categorise the contribution of Social Value... by using the input, process, output and environment. So this is initially applied in Organizational Social Value but you can use this as pretext for identifying which aspect of the business does the legislation has... rather than just plainly stating about the Business...."*

- *"in addition to this you might want to employ a systematic literature review to compile all the research articles or legislation."*

- *"Some food and beverage giants that can certainly not be called SMEs are taking courageous steps in ecosystem preservation and sustainability. The Finnish Alcohol enterprise Altia has protected swamps to secure clean water for their production. The Finnish food and catering company Fazer calculates and communicates the climate footprint of their lunch servings. Other examples of giant companies paying attention to ecosystem sustainability include Carlsberg, Coca Cola and Barrilla. While the regulators cannot necessarily draw lessons for steering SMEs from these huge players and their motivations, it is important to follow how these forerunners measure and justify their actions. The very same arguments and measures can work in inspiring or enforcing SMEs."*

- *"I agree, that giant firmas can serve for inspiration of SMEs, however, we can keep in mind that such entertainments have often big PR depratments to show only what they want to show :) One of the reason why we focused on SMEs is that they are often not so powerful. I take example from the Czechia, where I live: some supermarkets, for example, buy below cost the locally produced food from farmers. On the other hand, for example, TESCO has decided to donate unsold meal to charity to prevent food waste. Two years ago this donation has been taxed and firmas rather threw the unsold food to trash. There is even an application MealSaver trying to solve this."*

Further needs:

Due to the broad nature of the request on the one hand and the narrowed down application case of SMEs in the food and drink sector, the search for relevant literature was quite challenging. There is sort of a gap/mismatch between the academic sources and the practical evidence/comments and feedback received in the call for knowledge. Thus it is crucial in light of reformulating the request to bring these two aspects together (potentially including other types of sources).

ANNEX 3: Evaluation of the policy and stakeholder relevance

Text of the policy relevance information document

Developing a mechanism for supporting better decisions on our environment based on the best available knowledge.

EKLIPSE is a European Mechanism to answer requests from policy makers and other societal actors on biodiversity related issues.

More information on the processes and the EKLIPSE project funded by the EU in H2020 is available at ***www.eklipse-mechanism.eu***

What are the advantages and disadvantages of existing approaches that environmental regulators can use to enhance environmental sustainability and improve outcomes for biodiversity of business operations, with a focus on small and medium-sized enterprises in the food and drink sector of Europe?

General Information

This question was proposed by the Scottish Environment Protection Agency (SEPA). To support SEPA in developing its new regulatory framework, this research will help the agency by identifying and evaluating approaches/mechanisms and incentives for regulating businesses in a way which delivers for biodiversity, and the ecosystem functions both people and biodiversity are dependent upon.

As a response to several virtual meetings with the requester as well as building on feedback from stakeholders, the request has been further refined and structured by the following sub questions:

1. What approaches can environmental regulators use to improve biodiversity outcomes of businesses?
2. How do we know these approaches work / are effective in improving biodiversity outcomes?
3. Which of these approaches work well under which conditions?
   a) conditions related to the national policy and legal context
   b) conditions related to corporate culture and mental mind-set

From a stakeholder perspective this means responding to two expectations: first, showing that these approaches worked and how, and second, to point out the added value compared to business as usual.

Context and justification

Government organisations and regulators have a key role in helping businesses operate in a more sustainable, yet still competitive, manner. SEPA is working to implement their new regulatory strategy 'One Planet Prosperity', which summarizes the agency's vision for ways they can work with Scottish businesses to enhance environmental sustainability. SEPA would like to find out which approaches they and other European regulatory agencies could use when working with businesses to achieve this vision, from traditional compliance with environmental standards, to going beyond compliance, and encouraging and promoting voluntary participation. It will be very useful to understand and evaluate how effective the various approaches are in changing employee (and customer) behaviour and mind-set and ultimately company culture.

The request focusses on, but is not limited to small and medium-sized enterprises (SMEs) in the food and drink sector, which can have important implications on water/land management. While large multi-national businesses may have the necessary resources and knowledge to comply with environmental regulations, small and medium-sized enterprises (SMEs) may require more support in understanding, selecting, and implementing mandatory and voluntary approaches to enhance environmental sustaina-bility. Furthermore, SMEs may be subject to indirect effects and have an impact on the supply chain.

This request aims to review literature, collect case studies and lessons learned to identify available approaches that can help foster environmental sustainability for businesses in general and SMEs in particular, and an analysis of what has worked or not worked from a business perspective, why and how?

What is the focus of the request?

The aim of the request is to capture the variety of approaches used (or potentially being used) to enhance biodiversity outcomes of businesses, with a view on the different hindering or fostering (context) conditions, factors to success or challenges. While the starting point is on business in general, practical experiences shall be narrowed down for SMEs in the food and drink sector of Europe.

What is the geographical range?

European level

What is EKLIPSE?

EKLIPSE is an EU-funded project that started in February 2016. The project aims to establish a robust and flexible long-term mechanism to provide knowledge for policy support on biodiversity and ecosystem services. It aims at communicating and engaging a wide set of knowledge holders to ensure tailor-made results to knowledge requesters and society more broadly.

The success of EKLIPSE and its resulting mechanism is in everyone's hands:

- the 'requesters' from policy and society who need to know what knowledge is out there to answer their policy or societal decision needs;
- the knowledge holders (be they scientists, policy makers or other citizens) who want their knowledge to be useful for decision-making; and
- the networks of people working on biodiversity and ecosystem services who can ensure a good dissemination of the knowledge, recommendations and decisions.

EKLIPSE coordinates innovative and transparent approaches for science, policy and societal actors to jointly provide the best available evidence leading to better informed decision-making.

Results of the evaluation of the policy and stakeholder relevance

Approach:

As the request was submitted by the Scottish EPA, which with the new regulatory strategy "One Planet Prosperity" provided the starting point and was also very much in focus in the call for knowledge, it is crucial to evaluate the policy relevance of this question to other countries/contexts in Europe as well as relevance at European level. As a first starting point Lars Müller, policy officer at the European Commission and responsible for the European Business@Biodiversity Platform has been contacted. This has been extended to other members of the EU Commission, both from DG Environment and DG Santé. Futhermore, representatives form the SEPA and the Scottish Forum on Natural Capital have been contacted. Additional comments have been received from Aled Jones from the Global Sustainability Institute, Richard Eksten from Scotland Europa and Sharon Brooks from WCMC.

In order to determine the stakeholder relevance the secretariat has reached out to some business representatives on a bilateral basis (the German "Biodiversity in Good Company" initiative, Pavan Sukhdev, study leader for TEEB, and feedback from individual businesses in the course of a dialogue forum on business and biodiversity in Berlin, Germany).

Finally, important feedback has been received from Stefan Hörmann and Tobias Ludes from Global Nature Fund in charge of the Life project "LIFEBioStandards - Biodiversity in Standards and Labels for the Food Industry" where some overlap and lessons learned as well as potential for collaboration with EKLIPSE has been identified.

A number of further experts have been contacted as listed in the table below.

Person contacted	**Institution**	**Email**
Lars Müller	B@B EU Commission, DG ENV	Lars.MUELLER@ec.europa.eu
Guy Duke	Consultant for B@B EU Commission	guy.duke@skynet.be
Rayka Hauser	DG ENV	Rayka.HAUSER@ec.europa.eu
Laure Ledoux	DG ENV	laure.LEDOUX@ec.europa.eu
Ladislav Miko	Deputy Director General, DG SANTE	Ladislav.Miko@ec.europa.eu
Richard Eksten	Scotland Europa	rickard.eksten@scotent.co.uk
Roger Owen	Scottish Forum on Natural Capital	Roger.owen@sepa.org.uk
Mike Elm	Scottish Forum on Natural Capital	melm@naturalcapitalforum.com
Alison Hester	Scottish Forum on Natural Capital	alison.hester@hutton.ac.uk
Colin Reid	Scottish Forum on Natural Capital	c.t.reid@dundee.ac.uk
Nick Hanley	Scottish Forum on Natural Capital	ndh3@st-andrews.ac.uk
Richard Tipper	Scottish Forum on Natural Capital	info@ecometrica.com
Rebecca Badger	SEPA	rebecca.badger@sepa.org.uk
Catherine Preston	SEPA	catherine.preston@sepa.org.uk
Jenny Faichney	SEPA	jenny.faichney@sepa.org.uk
Stuart Housden	Scotland Food & Drink	stuart.housdenrspb.org.uk
Marie Christie	Scottish Natural Heritage	Mary.Christie@snh.gov.uk
Aled Jones	Global Sustainability Institute at Anglia Ruskin University (http://www.anglia.ac.uk/global-sustainability-institute-gsi)	aled.jones@anglia.ac.uk
Dario Kenner	Global Sustainability Institute at Anglia Ruskin University (http://www.anglia.ac.uk/global-sustainability-institute-gsi)	Dario.Kenner@anglia.ac.uk

Eva Zabey	WBCSD	zabey@wbcsd.org
Sharon Brooks	PROTEUS team at WCMC	sharon.brooks@unep-wcmc.org
Kerstin Brauneder	PROTEUS team at WCMC	Kerstin.brauneder@unep-wcmc.org
Stefan Hörmann	Life Project "LIFEBioStandards - Biodiversity in Standards and Labels for the Food Industry"	hoermann@globalnature.org
Tobias Ludes	Life Project "LIFEBioStandards - Biodiversity in Standards and Labels for the Food Industry"	ludes@globalnature.org
Carl Grillet	Belgian Organic Beers	carl@biosano.be
Carlotta Maggio	WWF Oasi	c.maggio@wwfoasi.it
Leonardo Mazza	European Environmental Bureau	leonardo.mazza@eeb.org
Carolin Boßmeyer	Biodiversity in good Company	carolin.bossmeyer@business-and-biodiversity.de
Katrin Reuter	Biodiversity in good Company	katrin.reuter@business-and-biodiversity.de
Annabelle PRIN-COJAN	Entreprises pour l'Environnement (EpE)	aprincojan@epe-asso.org
Vats Varun	Syngenta	varun.vats@syngenta.com
Graeme Cook	Scottish Procurement	Graeme.Cook@gov.scot

Results:

The results of this outreach are summarized in the table below.

Contact person / institution	**Date contacted / Platform**	**Feedback**
Lars Müller / B@B EU Commission	23Mar2017 Meeting (Marianne) 19Jun2017 phone Call (Heidi) 4Jul2017 Meeting (Heidi)	There seems to be quite some overlap between EKLIPSE and the B@B Platform (interested to connect to EKLIPSE on a network basis as B@B has a similar idea/approach as EKLIPSE)! In light of this overlap Lars Müller also pointed to existing work and information e.g. from natural capital coalition. In particular several sectoral guides are available on the B@B website. Of particular interest could be their innovation workstream: "The Innovation for Biodiversity and Business workstream's objective is to promote innovations that contribute to nature protection by sharing best practices of innovative companies – including SMEs – and business models and identifying opportunities for fostering new business models." As can be seen from the EU's own B@B Platform there is a high policy relevance at European level, but the EKLIPSE request would need to be contextualized in the existing landscape in order not to duplicate things (e.g. work on natural capital). The existing work and materials provided under the scope of the Natural Capital Protocol shall be taken into consideration (Natural Capital Protocol Tookit: https://www.naturalcapitaltoolkit.org/). Besides the general NATURAL CAPITAL PROTOCOL PRINCIPLES AND FRAMEWORK (http://naturalcapitalcoalition.org/protocol/), the FOOD AND BEVERAGE SECTOR GUIDE and the supporting note on Biodiversity and ecosystem services in corporate natural capital accounting are of greatest relevance for the business request.
Carolin Bossmeyer, Katrin Reuter / Biodiversity in Good company	23Mar2017 Meeting (Marianne) 19Apr2017 phone call (Marianne)	It is important to note that there is no common understanding or position from business on the request, but rather singular viewpoints. We need to consider that many companies might not have the time/capacity or interest to get engaged (relation between motivation and efforts needed). This is mostly because the request/question is too complex and still too broad ("environmental sustainability"), also the

		focus on the requester (the Scottish EPA) may at first sight put in question the relevance for other European countries/contexts. The focus on SMEs in the food and drink sector is considered useful. For these reasons BiGC thinks it makes little sense to forward this to businesses (and their members) in the current format. Thus, what would be needed from their point of view is 1) keeping the request more simple and exciting (more in the sense of "Innovation leverage for businesses to go beyond regulation") and 2) contextualizing with what is already there (do a small research on this).
Pavan –Sukhdev / TEEB	19Apr2017 meeting (Marianne)	Pavan also highlighted the need to contextualize the request more and link to the existing international context to make it more relevant. He suggested aligning it with the goals of the CBD (conservation, sustainable use, equitable sharing of benefits) would nicely fit under the request (CBD has an own business and biodiversity initiative). In addition, we should also consider the SDGs (in particular 13, 14 and 15). However, we should discuss with the requester is this would match with their specifications. Furthermore, we need to be aware of the fact that most SMEs are part of complex supply chains and as such responding to supply chain requirements, i.e. we need to rethink if this is the right starting point or if ultimately it's the large global corporations that request these.
Georg Hoffmann / Ritter Sport	23Mar2017 Meeting (Marianne)	From the German perspective, it is not quite clear how the role of environmental regulators can (or if it should at all) be extended. This may be specific to the highly regulated situation in Germany (and potentially different for others countries/contexts in Europe). Especially the members of BiGC raised the question how environmental regulators could go beyond the efforts undertaken by BiGC and other initiatives. One participant said that the role of government was more in providing baseline data and planning etc. In addition, in particular for SMEs there may be a competitive issue with sharing innovative best practice (if this is then picked up by larger companies who use and brand it).
Roger Owen / SEPA	9Jun2017 email (Louise, Marianne)	I agree the research question is a useful one and that the outcomes may well help businesses to think about what opportunities they have for greening their operations. So I do support it. However, that supposes that we can communicate with SMEs in their own language and with a good understanding of their business operations and supply chains. That communication is vital to success in this area. I am sure this would be of interest to SFNC and that the Forum could act as a good sounding board for the research. I also wonder if any of the current RESAS programme is addressing similar or complementary research questions? Have you asked anyone at SNH about this too? It would be interesting to know if Richard Ekstens has views on where else to ask for support amongst European regulators.
Aled Jones / Global Sustainability Institute	20Jun2017 email (Marianne)	**Is the request policy relevant and will provide added value beyond what is already existing?** Yes the question is very policy relevant. However it may be premature. I do believe it is true to say 'large multi-national businesses may have the necessary resources and knowledge to comply with environmental regulations' however this is very different from the supporting business to improve biodiversity. There is much less evidence that large multinationals have the knowledge to deliver improvements to biodiversity. There are a number of programmes and activities that have demonstrated improvement however the choice of metrics is contested (see our AHRC Debating Nature's Value project for example!). This is not just in terms of how to measure and value biodiversity but also importantly the longevity of any biodiversity improvements is uncertain. Much more needs to be done to evaluate the effectiveness of these policies on multinationals to see if they truly do improve biodiversity (especially in the

		fact of one of the worst global biodiversity collapses ever). Therefore to then state SMEs need support in implementing these regulations may be true but that is also different from improving biodiversity – so what is this project trying to do – ensure environmental regulatory compliance or improve biodiversity – very different goals. I am also unsure whether enough data has been collected to be able to evaluate whether different approaches are effective or not (certainly over the longer term). There is not a lot of literature (independent literature which must be included and not just corporate social responsibility reports which are inherently biased) or case studies and the majority of these reflect on the immediate impact of a measure not the medium or long term impact. However these challenges are precisely why the question is policy relevant. To start to pull together a database and data collection method to evaluate the biodiversity impact of business (both large and SME) is vital and if EKLIPSE can do this then it is invaluable. I would just be hesitant to say that you will be able to answer the questions – you'll just be able to kick start the process of answering the questions. **Are we asking the right questions or where should we put the focus to make it most policy relevant?** The key challenge in asking the right questions is what the answer will tell us. As outlined above there is a large gap in knowledge and therefore the three questions as currently structured assume a certain outcome (that regulations do improve biodiversity outcomes and that it is about understanding the approach to help optimise the regulatory approach). At this stage I would tend to wider the first question and last to make sure as much information as possible is included. For example: 1. What approaches improve biodiversity outcomes of businesses? 2. How do we know these approaches work / are effective in improving biodiversity outcomes and over what timeframe? 3. Which of these approaches work well under which conditions? a) conditions related to the national policy and legal context (voluntary versus environmental regulation) b) conditions related to corporate culture and mental mind-set c) conditions related to the level of trust and partnership between the private and public sector
Richard Eksten / Scotland Europa	22Jun2017 email (Marianne)	Overall this sounds like a really robust approach, I can't think of any particular edits you need to do you it. In terms of European regulators, I assume you are already liaising with DG ENV, and in particular in the biodiversity unit where they have the initiative EU Business & Biodiversity Platform? The contact person is Lars.MUELLER@ec.europa.eu
Rayka Hauser (and the D2 team: Laure Ledoux, Anne Teller, Vujadin Kovacevic, Lars Müller, Stefan Leiner)	7Jun2017 meeting (Marianne) 6Jul2017 email (Marianne)	The question is addressing a very important issue and we understand the intention is to focus so as to make it manageable. You might nevertheless wish to consider broadening the perspective in view of the holistic approach needed in the food sector – see some suggestions and explanations below. I hope that you would find them useful, and of course we would be interested in being kept in the loop for the next stages. **To overall question:** "What are the advantages and disadvantages of existing approaches that environmental regulators can use to enhance environmental sustainability and improve outcomes for biodiversity of ~~small and medium-sized~~ enterprises in the food and drink sector of Europe?" **Comment:** In the understanding that "*environmental regulators*" are meant in the question in a wider sense and include interventions by various change agents in any possible role but not exclusively as "legislators" we think that focusing on existing approaches for environmental regula-

		tion for SMEs only in the food and drink sector might be too narrow. Some of the most powerful drivers and obstacles and intervention options for sustainability, relate to a range of actors relevant on the often many stages "from farm to fork". Consumption patterns & lifestyle choices by consumers, procurement, trade & competition rules, and overall the way all parts of the value and supply chain interact or offer opportunities for interventions, should be considered. The question would therefore become more policy relevant if it could also address the potential of interventions over the whole value chain, in the general business environment or in society, which might be more effective in changing biodiversity outcomes than environmental regulations targeting only specifically SMEs. It would be good to take into perspective the range of analytical approaches like TEEB in AgrifoodSector, iPES-Food research and recommendations on sustainable food systems and also (emerging) tools for the assessment, accounting and valuation of biodiversity and natural capital by business, notably the Natural Capital Protocol and sector guide for Food and Beverage. It would be interesting to also reflect, if possible, on the level at which a measure or approach would work best – sub-national, national or EU (e.g where a level playing 24ffect24s important). **To the sub-questions :** 1. What approaches can environmental regulators use to improve biodiversity outcomes of businesses? (see comment above) 2. How do we know these approaches work / are effecttive in improving biodiversity outcomes? How to account for biodiversity impacts ? how to identify the most biodiversity relevant parts of the value chain? How to keep track of interactions with these considering that complex value chains will have knock-on effects and may require (simultaneous) interventions at various parts / stages of the value supply/chain ? 3. Which approaches work well for which actors and change agents (farmers, public authorities, civil society, consumers, business, finance) under which circumstances? a) ~~conditions~~ related to the national policy and legal context (e.g. do integrated food policies as recently developed in some EU countries help to have a more holistic approach? b) ~~conditions~~ related to corporate natural capital management practice, culture and mental mind-set c) ~~conditions~~ related to the socio-economic context, e.g. a. structure and interactions within the entire market chain b. consumer awareness and choices c. …
Carlotta Maggio / WWF Italy	10Jul2017 email (Mari-	I will try to answer them based on our experience although as you may have seen from my presentation your questions do not directly apply to

	anne)	us. We do 't really work with SMEs. We are an exception in the sense that our project's main goals are to protected farmland biodiversity, recover farmland habitats for species recovery and find resources for nature conservation. We want to demonstrate that economic activities, if sustainable, can help to protect biodiversity. Terre dell'Oasi is a small cooperative of local farmers and producers; it was created inside WWF protected areas whose mission is to protect biodiversity. Therefore biodiversity protection is our man n goal, no one needs to convince us! Farmer's participation has always been voluntary. Another aspect to consider is that Terre dell'Oasi products are organic and those from other producers who want to join our project must be from protected areas, SCIs etc so Terre dell'Oasi works in a rather restricted "area". As for policies we work in nature reserves and natura2000 sites which have very strict regulations on what can be done. These are both EU and national laws and policies. Certainly farming in these areas is controlled. From our experience we have seen that farmers are often not willing to move to organic farming because they do not see the benefits, there is still a deep belief that organic farming yields less which may be true in the short term but not in the long term. Of course we also have lost crops in some years, particularly with this adverse weather, but diversifying has helped us. Government agencies and others need to get across to farmers/SMEs, show the benefits of protecting biodiversity, communication needs to be improved, implement policies and programmes to help SMEs undertake environmentally friendly approaches. In Italy the organic food market is rapidly growing, there is more demand and space for growth but farmers and SMEs need to be convinced that it is worth doing, to see measurable benefits. SMEs also need incentives, they need resources to cover initial investments and initial losses. Organic farming means more regulations, restrictions and costs (e.g. the organic certification and controls organic farmers are obliged by law to do). I'd add that in Italy It is also a cultural change which requires time. WWF has our collaborated with enterprises that wanted to move towards a more sustainable production. There are enterprise that are, with the help of WWF, moving in this direction by implementing new projects to make their products more sustainable, others are using Terre dell'Oasi products in their restaurants to increase awareness among the public, others still are supporting nature conservation projects. I'd have to ask colleagues about this as I am not involved. Other cases: WWF Italy has created a sort of land stewardship project where private landowners, generally farmers, become part of the WWF Italy network of protected areas, on condition that they move to organic farming and do conservation work. For example many will create and/or recover habitats for species, develop new projects for vulnerable species etc. There is WWF supervision and we provide advice on how to improve biodiversity.
Stefan Hörmann, Tobais Ludes / Global Nature Fund / "LIFEBio-Standards - Biodiversity in Standards and Labels for the Food Industry"	23 Mar 2017 Meeting (Marianne) 10 July 2017 phone call (Marianne)	• Stefan Hörmann coordinates the LIFEBioStandards project: In August 2016, Global Nature Fund, Lake Constance Foundation, Agentur AUF! (Germany), the Fundación Global Nature (Spain), Solagro and agoodforgood (France) and Instituto Superior Técnico (Portugal) have initiated the new EU LIFE Project "Biodiversity in Standards and Labels for the Food Industry". The main objective is to improve the biodiversity performance of standards and labels within the food industry, by supporting standard organizations to include efficient biodiversity criteria into their schemes; and motivating food processing companies and re-

		tailers to include biodiversity criteria into their sourcing guidelines. The specific objectives are: • Application of a biodiversity performance tool: A tool that operationalizes biodiversity criteria on certified farms, to assess the quality of implementation and to support monitoring. • Demonstrate the applicability of biodiversity criteria/measures: By implementing pilot projects in certified farms (arable crops, permanent crops, dairy production and meat production), the application, viability and use of biodiversity criteria will be demonstrated to standard organizations. • Capacity building to increase the quality of biodiversity measures on farms: Capacity building of certifiers/auditors, assessors and managers of certified farms will help to increase the quality measures implemented in certified farms. A training module for product manager and quality manager of companies will also be elaborated. • Monitoring of biodiversity: Monitor the impact on biodiversity of standards and labels for the food sector by establishing a meaningful two level monitoring system. A European-wide initiative on "Biodiversity in Standards and Labels of the Food Sector" will continue working on the topic even after this project ends in 2020. Within the framework of the project, 54 standards and food labels have been evaluated for the biodiversity criteria they use. Results are published in a Baseline Report. • In the scope of the LIFEBioStandards project a Biodiversity Performance Tool is being developed for use mainly by auditors (esp. for large businesses): criteria need to be simple and auditors need to be trained (that is why in the scope of the project training sessions are foreseen) • The project produces Biodiversity fact sheets summarizing the experiences from a number of pilots • Target group: standards and farmers → farmers are approached by businesses and become a certified farm • Project works also on the hierarchy of the labels together with the food and drink retail industry – question of scale: what is relevant on the market – a) mostly global/European stadards that reach many businesses, b) important regional standards → challenge of bringing the two together • Question of scale also means that many SMEs have little capacities → via the suplly chain requirements are passed on from larger businesses (retailers) to smaller ones (producers) • From the whole potential scope of existing approaches the project focuses on standards and labels, because they are considered the most feasible and pragmatic trigger (to some extent regulating, e.g. agricultural policy) → standards are ideal to go beyond regulation and compliance • The choice of this focus on standards and labels was also building on a preceding project Natural Capital Markets (http://www.naturalcapitalmarkets.org/startseite/) which had a broader scope. In general, economic and voluntary approaches are still facing a number of methodological problems, though there are examples (e.g. AgoraNatura – a marketplace for ecosystem services http://project2.zalf.de/AgoraNatura/). • Stefan mentions the Rainforest Alliance proect led by WCMC that also includes monitoring of standards

		What would be the most relevant starting point of the EKLIPSE business request? • first starting point could be at meta level targeting the supply chain: most businesses face the problem that they don't know where their products/raw materials come from and which risks or threats may be associated with them → data on the provenance of raw materials would be needed • a second approach could target primary producers at the very beginning of the supply chain (even world wide) → check what can work for them with reasonable efforts, food associations can be strong drivers, promoters *1. What approaches can environmental regulators use to improve biodiversity outcomes of businesses?* How about other regulators, e.g. related to agriculture? *2. How do we know these approaches work / are effective in improving biodiversity outcomes?* → this question focuses on monitoring and evaluation, so there may be some overlap with the LIFEBio project… Which tools are in place to monitor whether approaches are effective in improving biodiversity outcomes? (we will probably find a lack of knowledge here) *3. Which of these approaches work well under which conditions?* *a) conditions related to the national policy and legal context* *b) conditions related to corporate culture and mental mind-set* c) conditions associated to the specific scheme (different standards, governance schemes)
Sharon Brooks / WCMC	12Jul2017 phone call (Marianne)	• Sharon works at WCMC and is also on the Strategic Advisory Board of the LIFEBio project • She agrees with Stefan Hörmann that labelling is particularly effective compared to other approaches, this is mostly because it is third party hosted → self-regulation is difficult (especially for SMEs), need for standards • Finance can play a huge role in influencing business behaviour, e.g. the EIB standard or Multinational Development standards • From the point of view of regulators, a good starting point to "go beyond regulation" is to start with their own public procurement • Temporal aspects need to be taken into consideration: anticipating and piloting future regulation (what may be a standard today, may become a regulation tomorrow) • Regulators should provide a better planning baseline Regarding the request: • There is probably a need to specify or the responses could be quite generic, e.g. via creating a definitive list of schemes to consider (instead of the open broad question "What apporoaches…") → check whether a typology exists that we might use • Recommendation to consider also what level is targeted (i.e. the tool/approach in general e.g. offsetting or a specific application of it e.g. the IFC standard on offsetting) • Recommendation also to consider the temporal element ("now and in the future"): people want immediate results, but how effective are things in terms of long-term biodiversity outcomes? • Regarding the policy relevance and the role of regulators a useful focus/question could be: What can regulators do to mainstream standards etc. beyond the minority of already committed businesses (that already go beyond regulatory compliance)?
Carl Grillet / Biosano / Belgian	12Jul2017 phone call	Carl mentioned a number of specific projects (usually initiatives of single companies) with a focus on organic products:

Organic Beers	(Marianne)	• Gageleer beer is an example for logos and labels that are quite powerful → became a powerful marketing tool, working together with naturmonumenten (in the Netherlands) • Puro Coffee • Endangered Species Chocolate • LU cookies • As labels and standards can be powerful marketing tools (like in the case of Gageleer beer, but also Endangered Species Chocolate), it is also worth checking differences in consumer preferences for marketing/packaging • However, he also confirmed that these are just a small committed minority and that the real challenge is in addressing/reaching the vast majority of businesses that go for business as usual. • Public procurement can actually be a wuite poserful trigger/starting point.

ANNEX 4: Call for Experts

EKLIPSE
Knowledge & Learning Mechanism on Biodiversity & Ecosystem Services

Developing a mechanism for supporting better decisions on our environment based on the best available knowledge.

CALL FOR EXPERTS No.4/2017 EKLIPSE – September 2017

How can environmental regulators support businesses to improve the outcomes of their operations for biodiversity, with a focus on small and medium-sized enterprises in the food and beverage sector in Europe?

Deadline for Call: 18th of October, 2017

EKLIPSE is inviting experts to join an expert working group (EWG) to assess and synthesize relevant knowledge related to approaches environmental regulators can use to support businesses to improve their outcomes for biodiversity, with a focus on small and medium-sized enterprises in the food and beverage sector in Europe. This is a policy request from the Scottish Environment Protection Agency (SEPA). The goal of the EWG is to first define a rough framework of approaches and their effectiveness. From that the most promising shall be identified and analysed to understand under which conditions they work well.

The expert working group will cover diverse and complementary skills (including practitioners and policy experts and a broad geographical coverage) and will interact with relevant stakeholders to ensure appropriate methodological choices and uptake of outputs.

- Are you interested in helping governments and regulators to support their businesses to incorporate nature inclusive strategies and improve biodiversity outcomes?
- Do you have expertise or ideas about promising approaches for business and biodiversity, including but not restricted to corporate responsibility, market-based instruments, voluntary environmental approaches, planning, or environmental economics?
- Are you interested in knowledge assessment and knowledge synthesis?
- Would you like to contribute directly to a policy-relevant process in your field of expertise?
- Would you like to expand your network and learn about methods of knowledge synthesis?
- Are you interested in collaborating in a transdisciplinary and multi-cultural setting?

Then please apply at http://www.eklipse-mechanism.eu/open_calls

Important dates and information:

- Interested experts should apply before midnight CET on the **18th of October, 2017** by following the rules and procedures detailed below.
- The members of the expert working group (EWG) will be selected by **6th of November, 2017** and a kick-off meeting will be organised by EKLIPSE in the week starting 4th of December.
- The EWG will have opportunities and financial and administrative support to meet face-to-face at regular intervals, as appropriate.
- The final deliverables are due **30th October, 2018**.
- Participation in this expert working group will require approximately 10% of a full time equivalent (i.e. 4 hours per week) – please find more information on expectations of and support to EKLIPSE Expert Working Groups **here**.

EKLIPSE is developing a European Mechanism to answer requests from policy makers and other societal actors on issues related to biodiversity and ecosystem services.

EKLIPSE organizes and facilitates knowledge synthesis processes, horizon scanning and societal dialogue on topics that relate to or impact on biodiversity and ecosystem services by making the best knowledge available. It invites experts to contribute their knowledge.

More information on the processes and the EKLIPSE project funded by the EU in H2020 is available at ***www.eklipse-mechanism.eu***

2 Request to be addressed by this call

Background to this request:

This request was initially put to EKLIPSE by the Scottish Environment Protection Agency (SEPA). The scoping of the request was discussed with scientists, policymakers, businesses and other stakeholders at different levels and through different platforms (conferences, social media, telephone calls and face-to-face meetings) to ensure the policy relevance of the request detailed below. Furthermore, a first scoping activity has been carried out (« Call for Knowledge »). The results of this call can be found in the EKLIPSE KNOCK forum http://www.eklipse-mechanism.eu/forum_discussion.

Improving biodiversity outcomes of businesses

Biodiversity loss is one of the biggest challenges that we are facing and many species and their habitats as well as ecosystems which provide essential resources for human nutrition and well-being are threatened by human activities.[1] Businesses are increasingly aware of their dependencies upon biodiversity and ecosystem services, taking this into consideration as the natural capital of their business operations, e.g. raw materials such as cotton or coffee. Despite this growing recognition, practical approaches for businesses to understand and manage their impacts on natural capital across their

[1] European Commission (2015a): The State of Nature in the European Union, COM(2015) 219 final ; European Commission (2015b): The Mid-Term Review of the EU Biodiversity Strategy To 2020, COM(2015) 478 final ; Biodiversity in Standards and Labels for the Food Industry, Baseline Report (April 2017).

supply chains are lacking.[2]

Improving biodiversity outcomes of businesses span over a multitude of approaches from regulation, to standards, voluntary and market based approaches. It is essential, however, to understand and evaluate how effective the various approaches are in changing employee mindsets, company culture and customer behaviour. Some initiatives and projects are starting in this field, most notably the Natural Capital Protocol, a standardized framework to help businesses identify, measure, and value their impacts and dependencies on natural capital and ultimately to apply the results of natural capital accounting into their existing operations. To facilitate the implementation of the protocol, sector guides have been published, initially for the food and beverage and apparel sectors.[3] In addition, the European Commission hosts a Business @ Biodiversity Platform providing a forum for dialogue and policy interface to discuss the links between business and biodiversity at EU level with the aim of working with and helping businesses integrate natural capital and biodiversity considerations into business practices.[4]

Focus on small and medium-sized enterprises (SMEs) in the food and beverage sector

While the starting point is on business in general, practical experiences shall be narrowed down to small and medium-sized enterprises (SMEs) in the food and beverage sector in Europe. These can have important implications on water/land management. Large multi-national businesses may have the necessary resources and knowledge to go beyond environmental regulations, whereas small and medium-sized enterprises (SMEs) may require more support in understanding, selecting, and implementing mandatory and voluntary approaches to enhance environmental sustainability.

The conservation and sustainable use of biodiversity is the prerequisite for agriculture and food supply, because on the one hand they rely on healthy ecosystems and natural resources for production and on the other hand they are having a great impact on biodiversity as is described in the interim report TEEB for Food & Agriculture (2015). Most notably, intensified consumption patterns in industrialized countries and emerging economies, a growing demand for food and beverage products and an increasingly globalized food market have led to the vast exploitation of agricultural land, highly intensive production systems and dramatic biodiversity loss through land-use change, overexploitation, pollution and introduction of invasive alien species.[5]

Nonetheless, agriculture and food production in Europe has two sides: while it is one of the main drivers of biodiversity loss, it also provides the basis for many ecosystems and species of the historically grown cultural landscape.[6]

In addition to the high land use pressure, in Europe and along global supply chains, the complexity of biodiversity and the complexity of interactions and impacts across the supply chain of a food product (see Figure 1), render the reduction of adverse biodiversity impacts and thus improving biodiversity outcomes of business operations in the food and beverage sector very challenging.

[2] University of Cambridge Institute for Sustainability Leadership (CISL). (2016). Biodiversity and Ecosystem Services in Corporate Natural Capital Accounting : Synthesis report.

[3] Natural Capital Coalition. 2016. « Natural Capital Protocol – Food and Beverage Sector Guide ».

[4] European Commission. 2017. EU Business @ Biodiversity Platform. http://ec.europa.eu/environment/biodiversity/business/index_en.htm

[5] Biodiversity in Standards and Labels for the Food Industry, Baseline Report (April 2017) ; Natural Capital Coalition. 2016. « Natural Capital Protocol – Food and Beverage Sector Guide ».

[6] Biodiversity in Standards and Labels for the Food Industry, Baseline Report (April 2017).

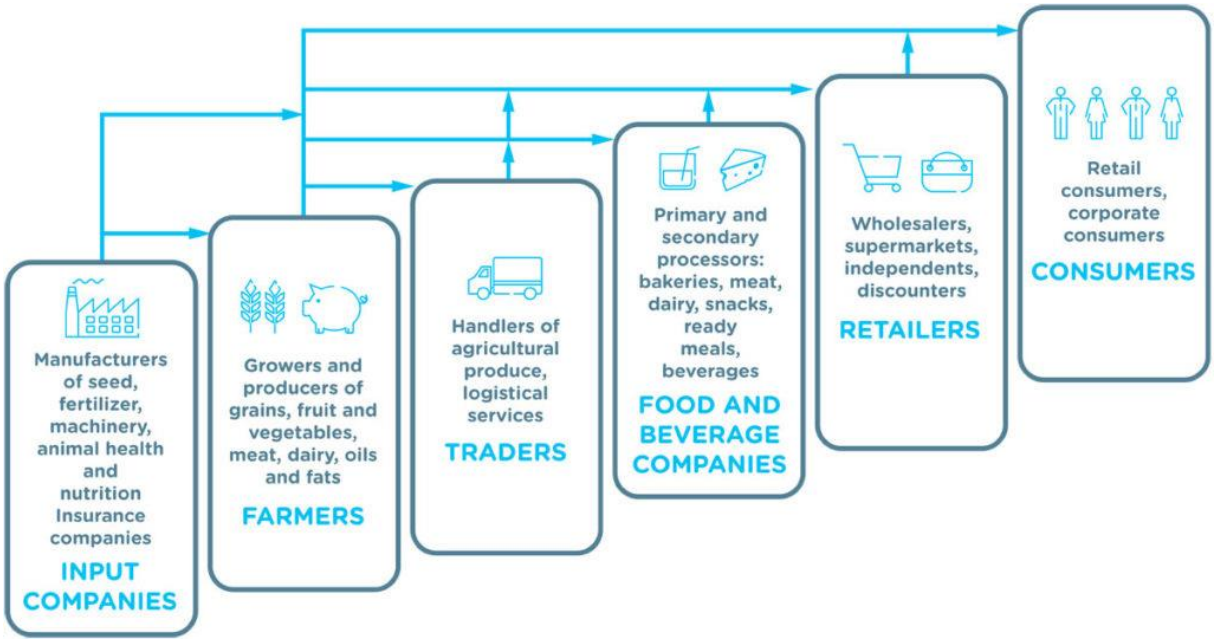


Figure 2 : The food and beverage supply chain

Source : Trucost. 2016. Environmentally extended input-output (EEI-O) model; Natural Capital Coalition. 2016. « Natural Capital Protocol – Food and Beverage Sector Guide ».

First attempts to tackle this challenge have been made and a range of analytical approaches exist, like TEEB in AgrifoodSector, iPES-Food research and recommendations on sustainable food systems and also (emerging) tools for the assessment, accounting and valuation of biodiversity and natural capital by business, notably the Natural Capital Protocol and the related sector guide for food and beverage, as well as an ongoing EU LIFE Project, led by Global Nature Fund, on "Biodiversity in Standards and Labels for the Food Industry". The main objective of this project is to improve the biodiversity performance of standards and labels within the food industry, by supporting standard organizations to include efficient biodiversity criteria into their schemes; and motivating food processing companies and retailers to include biodiversity criteria into their sourcing guidelines.[7]

Role of government

Government organisations and regulators can have a key role in helping businesses operate in a more sustainable, yet still competitive, manner. The Scottish Environment Protection Agency (SEPA) who issued this request, is working to implement their new regulatory strategy 'One Planet Prosperity', which summarizes the agency's vision for ways they can work with Scottish businesses to enhance environmental sustainability[8]. SEPA would like to find out which approaches they and other European regulatory agencies could use when working with businesses to achieve this vision, from traditional compliance with environmental standards, to going beyond compliance, and encouraging and promoting voluntary participation.

This raises the question how environmental regulators can complement or work together with private sector initiatives (e.g. the German Biodiversity in Good Company). Some of the most powerful drivers and obstacles and intervention options for sustainability, relate to a range of actors relevant on the often many stages "from farm to fork". Therefore, consumption patterns and lifestyle choices by consumers, procurement, trade and competition rules, and overall the way all parts of the value

[7] Biodiversity in Standards and Labels for the Food Industry, Baseline Report (April 2017).
[8] Scottish Environment Protection Agency. 2016. One Planet Prosperity – Our Regulatory Strategy.

and supply chain interact or offer opportunities for interventions, can have a significant influence on business behaviour.

3 Objectives of the call and suggested programme of work

EKLIPSE is looking to create an expert working group (EWG) to assess and synthesize relevant knowledge related to approaches environmental regulators can use to support businesses to improve their outcomes for biodiversity, with a focus on small and medium-sized enterprises in the food and beverage sector in Europe.

This request aims to review literature, collect case studies and lessons learned to capture the variety of approaches used (or potentially being used) to enhance biodiversity outcomes of businesses in general and SMEs in particular, with a view on the different hindering or fostering (context) conditions, factors to success or challenges. From a stakeholder perspective this means responding to two expectations: first, showing that these approaches worked, why and how, and second, to point out the added value compared to business as usual.

The EWG supported by the EKLIPSE Team will review, collect and communicate the best available knowledge applying a structured step-wise approach in comprehensive identification of the existing research evidence. This is based on the following tasks and the indicated potential methods:

Task 1: Define a rough framework of approaches and their effectiveness

1 What approaches can improve biodiversity outcomes of businesses?
2 How do we know these approaches work / are effective in improving biodiversity outcomes and over what timeframe, i.e. regarding accounting for biodiversity impacts, identifying the most relevant parts of the value chain, and keeping track of interactions across complex value chains?

Goal : *providing a systematic overview of approaches that regulators could potentially use*

Suggested methods: *Task 1 is about setting the scene and framing the problem with respect to possible approaches, it concerns « agenda setting » within the policy cycle and should use exploratory methods, without going into too much detail on exact causal relationships, i.e. more stocktaking than understanding how and why approaches are selected. Therefore a* ***Non-systematic Literature Review*** *(or* ***Quick Scoping Review****) could be the very first step to do a* ***Solution Scanning*** *of approaches that environmental regulators can use to improve outcomes for businesses. To complement the list of solutions a* ***Delphi process*** *could be applied.*

Task 2: Identify the most promising approaches to be used by regulators

3 What are the advantages and disadvantages of existing (and potential) approaches?
4 Which of the approaches identified in task 1 are most promising to be used by regulators?

Goal : *providing a comprehensible and expedient choice of approaches from task 1 for further in-depth analysis in task 3*

Task 3: Analyse under which conditions the chosen approaches work well

5 Which of these approaches work well under which conditions?
6 This shall take into account different perspectives and can include for example the following conditions:
   - conditions related to the national policy and legal context (e.g. do integrated food policies as recently developed in some EU countries help to have a more holistic approach?),
   - conditions related to the specific scheme (different standards, governance schemes),
   - conditions related to corporate natural capital management practice, culture and mindset,
   - conditions related to the socio-economic context, e.g. structure and interactions within the entire market chain, consumer awareness and choices, and
   - conditions related to the level of trust and partnership between the private and public sector.

Suggested methods: *For tasks 2 & 3, a framework is required for assessing the « effectiveness » of the different approaches both with regard to different criteria (for the outcomes such as biodiversity, other sustainability indicators, feasibility, costs, etc. conditions such as planning environment, culture, …).*

Therefore, a ***Multi-Criteria-Analysis*** *may be best suited to deal with this task. Furthermore, we suggest to build on existing frameworks and complement it again with* ***expert consultations*** *or* ***focus groups*** *as « intermediaries » what could also be a good source for seeking people's understanding.*

While all three tasks are consecutively building on the previous one, the major emphasis of this knowledge synthesis is on task 3 and the development of practical recommendations for environmental regulators.

Challenges to be taken into consideration

Improving biodiversity outcomes of businesses faces a number of challenges that the EWG may take into consideration:

- Government agencies and others need to **communicate** with businesses in their own language and with a good understanding of their business operations and supply chains.
- Temporal aspects need to be taken into consideration, both with regard to anticipating and piloting future regulation (what may be a standard today may become a regulation tomorrow) and the **longevity** of any biodiversity improvements (people want immediate results, but how effective are approaches in terms of long-term biodiversity outcomes?)
- To start to pull together a **database** and data collection method to evaluate the biodiversity impact of businesses (both large and SMEs) is vital. Most businesses face the problem that they don't know where their products/raw materials come from and which risks or threats may be associated with them, thus data on the provenance of raw materials would be needed to be aware of risks that arise along the supply chain.
- It would be interesting to reflect on the **level** at which a measure or approach would work best – sub-national, national or EU (e.g. where a level playing effect is important). This question of scale also refers to what is relevant on the market in the food and drink retail industry, e.g. mostly global standards that reach many businesses vs. regional initiatives and influences.

- Ultimately, with regard to the **target group** for biodiversity improvements of business operations two different strategies could be used: 1) Innovation leverage for businesses to go beyond regulation (i.e. pilots, first movers) or 2) mainstreaming the variety of existing approaches beyond the minority of already committed businesses.

4 Implementation steps and timeline

The work is expected to follow the EKLIPSE knowledge synthesis process, i.e. it will include the following steps:

- **Kick-off dialogue meeting with EKLIPSE** Knowledge Coordination Body (KCB) to ensure common understanding of the request among experts (within 3 weeks of nomination of expert group).
- **Preparation of the work** (to be concluded within 12 weeks of nomination)
    - Develop a methodological protocol based on the above suggestions, (with support of the EKLIPSE expert group for knowledge synthesis methods)
    - Refining agenda and needs for support (e.g. librarian)
    - Agreement of protocol with KCB and requesters and publication
    - Review of protocol through open consultation (organized by EKLIPSE)
    - Respond to and integrate the results of extended peer review on the methodological protocol
- **Conducting the work**
    - Collating and assessing existing knowledge relevant for the request (possible help of librarians to be agreed)
    - Draft report including recommendations for measures potentially effective across Europe concerning policy, management and research (draft to be discussed with KCB and requesters)
    - Full draft completed for review
- **Finalisation**
    - Extended peer review of the draft report by scientists (selected by EKLIPSE) and involving also requester and stakeholders (via open consultation, organised by EKLIPSE)
    - Respond to and integrate the results of extended peer review on the final report
    - Disseminate final report and its results as required, by October 2018.

5 Support provided by EKLIPSE

EKLIPSE team: The expert working group will be supported in all steps by the EKLIPSE Secretariat in communication, documentation (via the EKLIPSE website), and dissemination of products as required for this request. The working group will be supported thematically and strategically by the KCB.

Financial support: EKLIPSE activities rely on in-kind contributions as in similar science-policy processes. The benefits for experts and institutions arise from the networking in the group and the visibility of expertise to policy and society via the products. EKLIPSE will actively support the expert working group with a maximum budget of €30.000 that can be granted for the following tasks:

- the kick-off meeting, and a second EWG group meeting if required, will be hosted by and travel costs covered via EKLIPSE funds.
- upon specific request, individual experts from low income European countries or experts not receiving financial support from their institution (e.g. NGOs, consultants) might be supported via honorary contracts by an EKLIPSE partner institution.
- literature review and management (for this if a separate contract is required see section 6).

Technical support: EKLIPSE will cover the layout, printing, and dissemination of interim and final products, i.e. using the OPPLA Platform.

6 Eligibility and applicant information

6.1 Selection criteria for the composition of the Expert Group

Selection of the expert working group will be done by the KCB according to selection process and criteria outlined below (6.2) and on the EKLIPSE website.

The expert working group should cover all relevant disciplines including natural, social, economic and planning sciences.

Gender balance and geographical diversity of EU countries will be considered in the selection. If teams are applying, this will also apply, and the KCB may decide to complement a team selected with additional individual experts.

The working group is expected to have up to 10 experts.

6.2 Selection criteria for individual experts

- Demonstrated expertise in relation to the call covering one or more of the following: business and biodiversity, analysis of biodiversity impacts and biodiversity valuation, market-based instruments, voluntary environmental approaches, environmental policy, natural capital accounting, environmental standards, supply chain management, corporate responsibility, sustainable food production systems, small and medium-sized enterprises, methods for knowledge synthesis, and any other relevant discipline.
- Experience with biodiversity and ecosystem services and/or sustainable development as well as with European policy processes is desirable.
- Experience in inter- and transdisciplinary work on similar topics and in science-policy interface processes is desirable.
- Experts will have to comply with the principles and rules of EKLIPSE (e.g. conflicts of interest policy (see http://www.eklipse-mechanism.eu/our_ethical_framework for more detail).
- Project partners of EKLIPSE, or members of their institutions and KCB members are excluded.

6.3 Process and eligibility criteria for supporting contracts

Based on the needs identified by the EWG in its kick-off meeting, EKLIPSE may support the work of the group by sub-contracting some tasks to individual experts or institutions, from and beyond the EWG via working contracts.

The aim of these would be, for instance, to allow the recruitment of at least one skilled person for the literature search and screening based on the details provided in the protocol written by the EWG. An EKLIPSE partner would prepare and issue a (restricted) call for tender for this purpose.

Moreover, honorary contracts will be given upon request to experts chosen for the expert groups on an individual basis, if they could not contribute otherwise. This may be applicable to experts from low income European countries or experts not having financial support from their institution (e.g. NGOs, consultants). In case you require such support please contact the EKLIPSE secretariat (secretariat@eklipse-mechanism.eu).

6.4 Data and information policy

All results will be made publicly available through the EKLIPSE website and transparent procedures will apply, following Creative Commons Agreement 4.0[9], which includes the reference of authorship and involvement[9].

6.5 Information to provide

The EKLIPSE form should be completed, including a list of relevant publications and outlining relevant experience on the topic and details of experience in previous assessments or knowledge synthesis processes.

7 Application and notification of results

7.1 How to apply

The EKLIPSE expert form can be found on the EKLIPSE website under '**Open calls**'. The completed form should be submitted at latest **by midnight CET on 18th of October, 2017**.

Should you require any further information do not hesitate to contact us: secretariat@eklipsemechanism.eu.

7.2 Announcement of the results

Successful applicants will be notified directly by EKLIPSE by **6th of November, 2017**. As soon as they accept the nomination, names of selected experts will be made public on the EKLIPSE website.

EKLIPSE has received funding from the European Union's Horizon 2020 program under grant agreement 690474

[9] See http://creativecommons.org/licenses/by/4.0/. It permits unrestricted use, distribution, and reproduction in any medium, provided appropriate credit is given to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

ANNEX 5: Choice of methods

During the scoping process the EKLIPSE methods group and the KCB Business discussed potential methods of knowledge synthesis which can be applied for this request. Building on the discussions and materials prepared by the Method Experts Group, methods were suggested for the different steps of the request.

What methods can/shall be used?

Following the modification of the request into an overarching question and further sub-questions, it has been agreed that no single Knowledge synthesis method can be used to fully answer the request. Thus, this request will require a mix of different methods that need to be combined in a logical sequence. Therefore, the following methods have been chosen from the EKLIPSE Knowledge synthesis methods guidance report:

- Solutions scanning
- Non-systematic literature review
- Bayesian belief networks
- Structured decision making
- Multi-criteria decision analysis

This also has to take into account that the request is focused on an evidence-based retrospective looking question. The question how these experiences can be used for future improvements cannot be tackled sufficiently within the given scope, but may be considereed as an outlook at the end when the results are communicated.

Selecting Knowledge Synthesis Methods (KSM) Notes

Questions of the Request	1. What approaches can environmental regulators use to improve biodiversity outcomes of businesses? 2. How do we know these approaches work / are effective in improving biodiversity outcomes? 3. Which of these approaches work well under which conditions? a) conditions related to the national policy and legal context b) conditions related to corporate culture and mental mind-set
Summary of the results	After replying the 10 KSM questions (Table.1) the most appropriate methods to address the request are: - Non-systematic Literature Review and in case of resource availability could be extended to a Scoping Review. - Solution Scanning - Expert Consultation and Delphi process For Question 1 is really about setting the scene and framing the problem respectively possible approaches, it concerns « agenda setting » within the policy cycle and should use exploratory methods, without going into too much detail on exact causal relationships, more stocktaking than understanding how and why approaches are selected. Therefore a Non-systematic Literature Review (or Quick Scoping Review) could be the very first step to do a Solution Scanning of approaches that environmental regulators can use to improve outcomes for business. To complement the list of solution a Delphi process could be applied For questions 2 & 3, a framework is required for assessing the « effectiveness » of the different approaches both with regard to different criteria (for the outcomes such as biodiversity, other sustainability indicators,

	feasibility, costs, etc conditions such as planning environment, culture, … We suggest to build on existing frameworks (if any[+]) and complement it again with expert consultations or focus groups as « intermediaries » what could also be a good source for seeking peoples's understanding.
Notes	For this request, questions 1, 4, 6, and 10 were the most important because they define whether it is POSSIBLE to carry out the method. Table 1. List the responses of the 10 KSM questions for each of the three request questions. Table 2. Summarised the methods resulted based on the responses from Table1.
Needs for Clarification	Are there already frameworks for assessing effectiveness of interventions to build on in the literature?[+]

Table 1. Responses to the 10 questions for selecting the KSM

Questions for KSM selection	Question 1	Question 2	Question 3
1. Type of question	Seeking optimal management (learning from experiences)	Seeking measures of effectiveness of interventions	3.a Seeking measures of effectiveness of interventions 3.b Seeking peoples understanding of an issue
2. What sources of knowledge should be included?	Scientific ILK Technical know-how	Scientific ILK Technical know-how	Scientific ILK Technical know-how
3. What types of information are useful or acceptable?	Financial information Qualitative data Quantitative data	Financial information Qualitative data Quantitative data	Financial information Qualitative data Quantitative data
4. Time available? When do you need the results?	8 months-several years	8 months-several years	8 months-several years
5. Over what time horizon does the question recur?	May recur in the future, at unpredictable times	May recur in the future, at unpredictable times	May recur in the future, at unpredictable times
6. What financial resources are available (willingness to pay)?	Medium (salary for 4-8 months)	Medium (salary for 4-8 months)	Medium (salary for 4-8 months)
7. What is the level of controversy?	Low	Low	Low
8. What are the consequences of getting it wrong?	Low	Low	Low
9. What existing knowledge is the Network of Knowledge aware of?	Unknown	Unknown	Unknown
10. How narrow could the question get before it stops being policy-relevant?	Intermediate (Broader than a single well-defined response, ecosystem, but not across	Intermediate (Broader than a single well-defined response, ecosystem, but not	Intermediate (Broader than a single well-defined response, ecosystem, but not across more than one policy area)

Questions for KSM selection	Question 1	Question 2	Question 3
	more than one policy area)	across more than one policy area)	

Table 2 Justification of appropriate methods for the Business Request.

Methods ordered according to the number of times they appear as appropriate methods based on responses to questions 1-10 above. Recommended methods are shaded dark green, or lighter green if the recommendation is conditional or has caveats.

	Apperances in the set of lits of appropiate methods from each response			Recomended Method?	Reasons for not recommending
Method	**Q 1**	**Q2**	**Q3**		
Cochrane-style systematic review	5	6	6	NO	Not enough resources(6)
Solutions scanning	10	9	10	YES	
Summaries and synopses	6	7	7	YES	Depending on resource availability
Meta-analysis	5	6	6	NO	Not enough resources(6)
Rapid Evidence Assessment	7	8	8	NO	Not enough resources(6)
Scoping Review	8	9	9	YES	When the resources are limited a Non-systeatic review can be applied
Systematic map	7	8	8	NO	Not enough resources (6)
Vote counting	0	0	0	NO	Not applicable to type of question (1)
Non-systematic literature reviews	5	6	6	YES*	When the resources are limited for a scoping review
Expert consultation and Delphi process	6	7	7	YES	
Causal chain analysis (CCA)	4	5	5	NO	Request is too broad (10)
Bayesian belief networks (BBN)	5	6	6	NO	Request is too broad (10)
Focus groups	8	8	8	YES	Warning: risk of bias
Discourse analysis	5	5	6	NO	Not applicable to type of question (1)
Joint fact finding (JFF) and double sided critique (DSC)	5	6	7	NO	Not applicable to type of question (1)
Scenario analysis	5	5	5	NO	Not applicable to type of question (1)
Structured Decision Making	8	8	8	NO	
Adaptive management	6	7	7	NO	Request is too broad (10)
Participatory mapping	6	6	7	NO	No geographical information required
Multi criteria analysis (MCA)	3	3	3	NO	Not applicable to type of question (1)

Three assessments of potential for individual KSMs to be used for EKLIPSE-Business request

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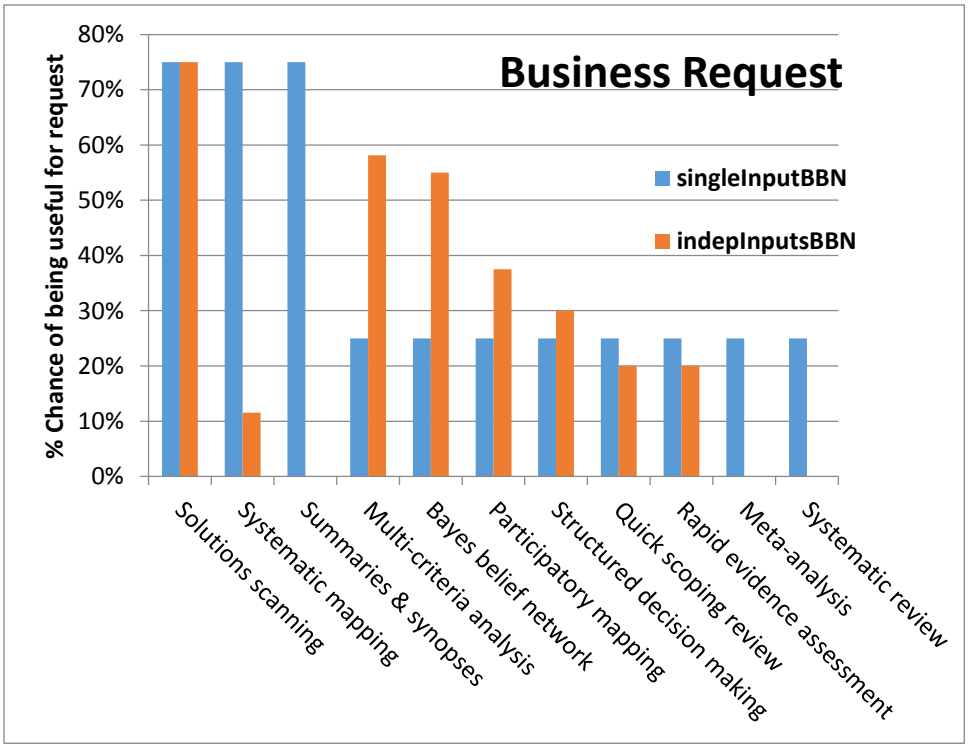
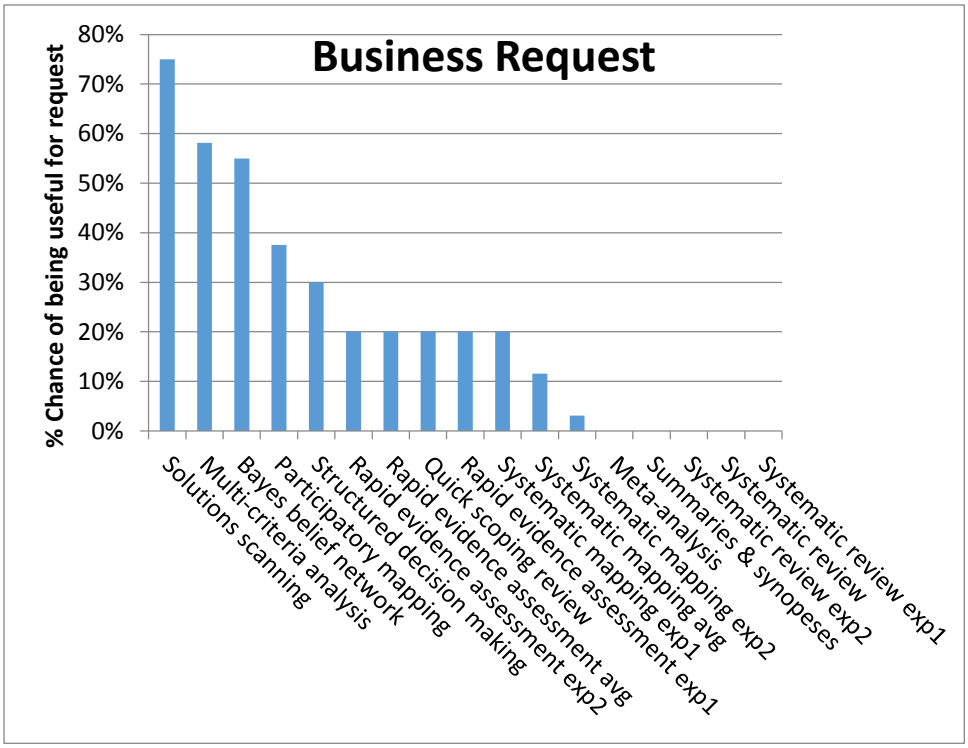
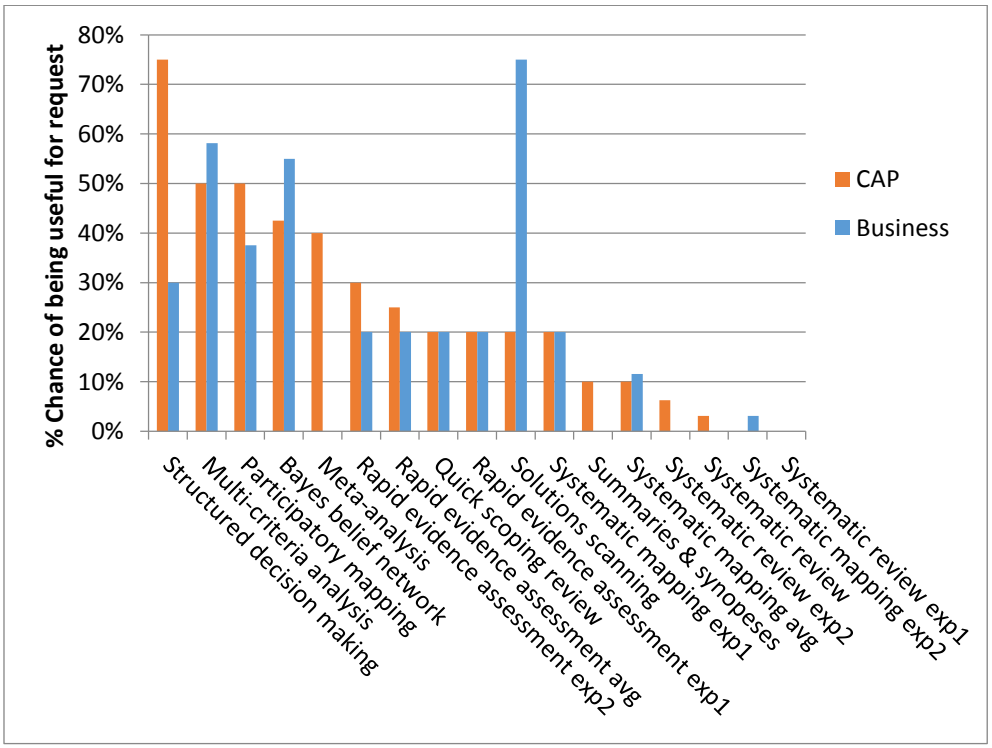
The singleInputBBN and indepInputsBBN assessments are each based on the same Bayesian Belief Network structure – only difference being the input values. Inputs for singleInputBBN were the names of KSMs listed under each question-option combo in the "Eklipse Methods Decision Support V1.3". Inputs for indepInputsBBN were based on an independent elicitation of 5 members of the expert group, who gave inputs on a total of 11 KSMs (1-5 KSMs per expert).

Based on the conference calls with the requestors and members of the EKLIPSE team, it has become clear that each request could benefit from some kind of process to support decisions or policy-making (see Appendix 1). The only KSM that is suitable for serving as a basis for such a process and that scored highly in at least one of the two assessments was multi-criteria analysis.





Based on independent-inputs BBN



Methods chosen

Solutions scanning

Method	Solutions scanning
Summary of Method	A structured, step-wise methodology to identify a long list of available actions, interventions or approaches, in response to a broad challenge. A list is gathered through consultation with a wide range of stakeholders, and continues to be circulated through networks until five new people have seen it and add nothing. Solution scanning forms the first step

	in Summaries of evidence.
Key References	Sutherland WJ, Gardner T, Bogich TL et al (2014). Solution scanning as a key policy tool: identifying management interventions to help maintain and enhance regulating ecosystem services. Ecol Soc 19:3. doi:10.5751/ES-06082-190203.
Examples of application in policy	This method was used to identify a long list of possible actions that constitute 'sustainable intensification' of agriculture, during the Sustainable Intensification Platform (http://www.siplatform.org.uk/) funded by the UK Department for Environment Food and Rural Affairs (Defra; Dicks et al. in prep). The most promising actions from among the list were prioritised by a group of stakeholders to inform subsequent research activity.
Cost	1 month (FTE)
Time required	Can be completed within 1 month, if needed. Maximum 3 months
Repeatability	Low to Moderate. There is no definitive list. New possibilities occur over time
Transparancy	High (if conducted well)
Risk of bias	Moderate. Contents of the list depend on who is asked to contribute. Conducted properly, a very wide range of stakeholders should be included and the risk of bias reduced
Scale (or level of detail)	Independent of scale (any)
Capacity for Participation	High
Data demand	No data required
Types of Knowledge	Science/technical/opinion; Tacit
Types of Output	Written list of options
Specific Expertise required	None. The consultees who build the list should have practical experience in the policy area
Strengths	Powerful tool at an early stage in the policy cycle Suitable for very broad topic areas
Weaknesses	Does not provide any evidence for the effects/impacts of the different solutions

Non-systematic literature review

Method	**Non-systematic literature review**
Summary of Method	Literature review that describes (and may appraise) the state/nature of existing evidence, but does not follow a standardised, systematic method. There are no formal reporting requirements.
Key References	"No specific resource provides guidance on the method, as methods are so variable. The following paper suggests how to improve and standardise literature review methods.
Examples of application in policy	Haddaway, N., Woodcock, P., Macura, B., Collins, A. (2015). Making literature reviews more reliable through application of lessons from systematic reviews. Conservation Biology 29, 1596-1605."
Cost	Many scientific assessment reports commissioned by governments or international institutions follow this method, or a combination of this with ' expert consultation. For example, the assessment reports of the Intergovernmental Panel on Climate Change (IPCC), the Millennium Ecosystem Assessment (MEA) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) published so far have not followed standardised or peer-reviewed protocols or appraisal methods. Instead, they rely on internal and external extended peer-review of draft report stages as the main element of quality control. They have not documented their detailed methods, or the fate of all articles screened. These steps are required for systematic reviews and systematic maps, and usually also for rapid evidence assessments and scoping reviews.
Time required	Varies depending on rigour (a few days to months FTE)
Repeatability	Varies depending on rigour (a few days to months)
Transparancy	Low
Risk of bias	Low
Scale (or level of detail)	Very high
Capacity for Participation	Independent of scale (any)

Data demand	Usually none
Types of Knowledge	Variable depending on rigour
Types of Output	Scientific/technical, opinion- based; explicit
Specific Expertise required	Narrative description and reference list
Strengths	Usually requires a topic expert
Weaknesses	"Fast

Bayesian belief networks

Method	**Bayesian belief networks**
Summary of Method	A semi -quantitative modelling approach that combines empirical data with expert knowledge to calculate the probability of a specific outcome or set of outcomes. Similar to the Causal Criteria Analysis, the method first builds a visual representation of the system. Probabilities for each link can be based on expert judgement, literature review, or a prescribed mechanistic model. The BBN model can then generate a range of probabilities for the final outcome, based on the underlying system. The main output is a diagrammatic interpretation of a system showing probabilistic relationships and outcomes within a causal chain. This method explicitly incorporates uncertainty about linkages in a causal chain via conditional probabilities. For example, a BBN could quantify likelihood of storm events large enough to impact coastal ecosystems.
Key References	"Cooper, G. F., & Herskovits, E. (1992). A Bayesian method for the induction of probabilistic networks from data. Machine learning, 9(4), 309-347.
Examples of application in policy	Landuyt, D., Broekx, S., D'hondt, R., Engelen, G., Aertsens, J., & Goethals, P. L. (2013). A review of Bayesian belief networks in ecosystem service modelling. Environmental Modelling & Software, 46, 1-11.
Cost	McCann, R. K., Marcot, B. G., & Ellis, R. (2006). Bayesian belief networks: applications in ecology and natural resource management. Canadian Journal of Forest Research, 36(12), 3053-3062. "
Time required	"Nyberg et al. (2006) present a case study of a BBN used during adaptive management of forest lichens in Canada.
Repeatability	Thorne et al. (2015) describe the use of a BBN with stakeholders managing tidal marshes across San Francisco Bay, USA.2
Transparancy	Nyberg, J. B., B. G. Marcot, and R. Sulyma. (2006). Using Bayesian belief networks in adaptive management.
Risk of bias	Canadian Journal of Forest Research 36:3104-3116.
Scale (or level of detail)	Thorne, K. , B. J. Mattsson, J. Takekawa, J. Cummings, D. Crouse, G. Block, V. Bloom, M. Gerhart, S. Goldbeck, J. O'Halloran, B. Huning, N, Peterson, C. Sloop, M. Stewart, K. Taylor, and L. Valoppi. (2015). Collaborative decision-making framework to optimize resilience of tidal marshes in light of climate change uncertainty. Ecology and Society 20 (1): 30."
Capacity for Participation	"Staff: 1 week – 3 months FTE
Data demand	Depends on
Types of Knowledge	• Software used, some freeware and trial versions available
Types of Output	• The number of stakeholders/experts involved
Specific Expertise required	• Level of disagreement among stakeholders/experts
Strengths	• Number of revision rounds→ depending on further use of the BBN
Weaknesses	• Level of detail: text or tabular explanation of the BBN, and number of nodes (factors) and relationships (links) in BBN

Structured decision making

Method	**Structured decision making**
Summary of Method	Structured Decision Making (SDM) is a well-defined method for analysing a decision by breaking it into components including the objectives, possible actions, and models linking actions to objectives. It aims to compare possible actions in terms of one or more objec-

	tives.It provides transparency by specifying each of these components and providing information that a decision-maker can use to implement and defend a decision.This method can incorporate other knowledge synthesis methods. For example, Thorne et al. (2012) describe a process that uses a Bayesian Belief Network in the context of Structure Decision Making. Expert consultation with elicitation is often used to quantify predictive relationships as part of SDM. SDM is founded on principles of value-focused thinking and decision analysis and can be conducted in a participatory manner with decision-makers, stakeholders, and experts. It can also provide a basis for adaptive management. Structured Decision Making typically involves a series of iterative steps called PrOACT (Problem framing, Objectives, Actions, Consequences, and Tradeoffs).
Key References	"The method is described in detail in two books (Conroy and Peterson, 2012; Gregory et al. 2012). There is an open access online course describing each step in detail, through videos and handouts (Runge et al. 2011). Conroy, M. J. and J. T. Peterson. (2012). Decision making in natural resource management: A structured, adaptive approach. John Wiley & Sons, Hoboken, New Jersey, USA. NOT OPEN ACCESS.
Examples of application in policy	Gregory, R., Failing, L., Harstone, M., Long, G., McDaniels, T., & Ohlson, D. (2012). Structured decision making: a practical guide to environmental management choices. John Wiley & Sons. Runge, M. C., J. F. Cochrane, et al. (2011). An overview of structured decision making, revised edition. U.S. Fish and Wildlife Service, National Conservation Training Center, Shepherdstown, West Virginia, USA. [online videos] https://training.fws.gov/courses/ALC/ALC3183/resources/index.html"
Cost	"SDM is used to inform decisions by US state and federal natural resource management agencies, including Fish and Wildlife Service, National Marine Fisheries Commission, and US Army Corps of Engineers. It has also been used to inform regional decision-making in the San Francisco Bay Estuary and multi-party river management in southern British Columbia and northern Alberta. It has been implemented in multi-stakeholder planning processes to inform decisions by a private hydroelectric company, local watershed organization, and a township in British Columbia.
Time required	Also used to inform management decisions by trans
Repeatability	-boundary protected areas in Europe involving broad
Transparancy	-scale conservation issues.
Risk of bias	Some published examples of application to real-world decision-making: Compass Resource Management. 2015. Feature projects. Compass Resource Management, Vancouver, British Columbia, Canada. http://www.compassrm.com/feature_projects.php
Scale (or level of detail)	Dalyander, P. S., M. Meyers, B. Mattsson, et al. (2016). Use of structured decision-making to explicitly incorporate environmental process understanding in management of coastal restoration projects: Case study on barrier islands of the northern Gulf of Mexico. Journal of Environmental Management 183: 497-509.
Capacity for Participation	Gannon, J. J., T. L. Shaffer, and C. T. Moore. (2013). Native Prairie Adaptive Management: a multi-region adaptive approach to invasive plant management on Fish and Wildlife Service owned native prairies.US Geological Survey, Reston, Virginia, USA. https://pubs.er.usgs.gov/publication/ofr20131279
Data demand	Gregory, R., & Long, G. (2009). Using structured decision making to help implement a precautionary approach to endangered species management. Risk Analysis, 29(4), 518-532.
Types of Knowledge	Ohlson, D. W., McKinnon, G. A., & Hirsch, K. G. (2005). A structured decision-making approach to climate change adaptation in the forest sector. The Forestry Chronicle, 81(1), 97-103.
Types of Output	Ralls, K., & Starfield, A. M. (1995). Choosing a Management Strategy: Two Structured Decision-Making Methods for Evaluating the Predictions of Stochastic Simulation Models. Conservation Biology, 9(1), 175-181.
Specific Expertise required	Thorne, K. M., B. J. Mattsson, et al. (2015). Collaborative decision-analytic framework to maximize resilience of tidal marshes to climate change. Ecology and Society 20. http://www.ecologyandsociety.org/vol20/iss1/art30/"
Strengths	"Staff time: at least 1 month (FTE). Needs two coaches trained in SDM, one with skills in quantitative decision analysis, and participants committing their time (see below) to par-

	ticipate throughout the process including at least one decision maker
Weaknesses	Cost depends on

Multi-Criteria Decision Analysis

Method	**Multi-Criteria Decision Analysis**
Summary of Method	Multi-Criteria Decision Analysis (MCDA) evaluates the performance of alternative courses of action with respect to criteria that capture the key dimensions of the decision-making problem, involving human judgment and preferences (Belton and Stewart 2002).
Key References	"Belton V, Stewart TJ (2002). Multiple criteria decision analysis: an integrated approach. Kluwer, London. NOT OPEN ACCESS.
Examples of application in policy	Greco, S., Figueira, J., & Ehrgott, M. (2005). Multiple criteria decision analysis. Springer's International
Cost	series. NOT OPEN ACCESS.
Time required	Mendoza, G. A., & Martins, H. (2006).
Repeatability	Multi-criteria decision analysis in natural resource management:a critical review of methods and new modelling paradigms. Forest ecology and management, 230(1), 1-22. NOT OPEN ACCESS."
Transparancy	"Multi-criteria Decision Analysis was used to determine which of 60 or 70 environmentally important sites in or next to the Nature Reserve of Crau in Southern France reserve should be part of the reserve, and which areas could be released for development, such as for a gas pipeline scheme (Schmelev, 2010).
Risk of bias	Spatial MCDA, incorporating GIS, was used to assess the risks and adaptive capacity of the Bach Ma National Park in Central Vietnam (Quynh Huong Nghiem, 2015).
Scale (or level of detail)	Schwenk et al. (2012) combined MCDA with forest simulation modelling and scenarios (see Scenario Analysis above) to identify optimal forest management strategies in Vermont, USA.
Capacity for Participation	Huang et al. (2011) provide an overview of environmental projects described in the published scientific literature that applied MCDA.
Data demand	Huang, I. B., Keisler, J., & Linkov, I. (2011). Multi-criteria decision analysis in environmental sciences: ten years of applications and trends. Science of the total environment, 409(19), 3578-3594.
Types of Knowledge	Quynh Huong Nghiem. (2015). GIS-based Spatial Multi-criteria Analysis: A Vulnerability Assessment Model for the Protected Areas of Vietnam. http://gispoint.de/fileadmin/user_upload/paper_gis_open/GI_Forum_2015/537558013.pdf
Types of Output	Schwenk, W. S., Donovan, T. M., Keeton, W. S., & Nunery, J. S. (2012). Carbon storage, timber production, and biodiversity: comparing ecosystem services with multi-criteria decision analysis. Ecological Applications, 22(5), 1612-1627.
Specific Expertise required	Shmelev, S.E. (2010). Multi-criteria Assessment of Ecosystems and Biodiversity: New Dimensions and
Strengths	Stakeholders in the South of France. Queen Elizabeth House, University of Oxford. QEH Working Paper Series – QEHWPS181 (33 pages). The paper can be accessed at:
Weaknesses	www.qeh.ox.ac.uk/dissemination/wpDetail?jor_id=339"

ANNEX 6: Literature Screening Business Request

Approach

As a first step a literature screening has been carried out.

Web of Science:

1. business OR "SME" OR "small and medium-sized enterprise" AND "voluntary environmental" OR "environmental compliance" OR "biodiversity governance" OR "environmental governance" AND "environmental regulator" OR "environmental authorities" OR "environmental agencies" AND food OR drink

- 166,262 results

2. "small and medium-sized enterprise" AND environment

- 30 results
- Salciuviene, L., R. Hopeniene, and A. Dovaliene. 2016. Perceived Corporate Social Responsibility and its Implementation in Practice: The Case of Lithuanian Small and Medium-Sized Enterprises. *Inzinerine Ekonomika-Engineering Economics* 27 no. 4: 479-490.

3. "SME" AND environment

- 305 results
- Hertel, M., and K. Menrad. 2016. Adoption of energy-efficient technologies in German SMEs of the horticultural sector-the moderating role of personal and social factors. *Energy Efficiency* 9 no. 3: 791-806.
- Thanki, S.J., and J.J. Thakkar. 2016. Value-value load diagram: a graphical tool for lean-green performance assessment. *Production Planning & Control* 27 no. 15: 1280-1297.
- Lewis, K.V., S. Cassells, and H. Roxas. 2015. SMEs and the Potential for A Collaborative Path to Environmental Responsibility. *Business Strategy and the Environment* 24 no. 8: 750-764.
- **Related**:
- Cassells, S., and K. Lewis. 2011. SMEs and Environmental Responsibility: Do Actions Reflect Attitudes? *Corporate Social Responsibility and Environmental Management* 18 no. 3: 186-199.
- Parker, C.M., J. Redmond, and M. Simpson. 2009. A review of interventions to encourage SMEs to make environmental improvements. *Environment and Planning C-Government and Policy* 27 no. 2: 279-301.
- Nejati, M., A. Amran, and N.H. Ahmad. 2014. Examining stakeholders' influence on environmental responsibility of micro, small and medium-sized enterprises and its outcomes. *Management Decision* 52 no. 10: 2021-2043.
- Studer, S., S. Tsang, R. Welford, and P. Hills. 2008. SMEs and voluntary environmental initiatives: a study of stakeholders' perspectives in Hong Kong. *Journal of Environmental Planning and Management* 51 no. 2: 285-301.
- Saez-Martinez, F.J., C. Diaz-Garcia, and A. Gonzalez-Moreno. 2016. Factors Promoting Environmental Responsibility in European SMEs: The Effect on Performance. Sustainability 8 no. 9: 14.
- Leonidou, L.C., P. Christodoulides, and D. Thwaites. 2016. External Determinants and Financial Outcomes of an Eco-friendly Orientation in Smaller Manufacturing Firms. *Journal of Small Business Management* 54 no. 1: 5-25.
- Brammer, S., S. Hoejmose, and K. Marchant. 2012. Environmental Management in SMEs in the UK: Practices, Pressures and Perceived Benefits. *Business Strategy and the Environment* 21 no. 7: 423-434.
- **Related**:
- Johnson, M.P., and S. Schaltegger. 2016. Two Decades of Sustainability Management Tools for SMEs: How Far Have We Come? *Journal of Small Business Management* 54 no. 2: 481-505.
- Benito-Hernandez, S., M. Platero-Jaime, and P. Esteban-Sanchez. 2016. The influence of cooperative relations of small businesses on environmental protection intensity. *Business Ethics-a European Review* 25 no. 4: 416-439.
- Reyes-Rodriguez, J.F., J.P. Ulhoi, and H. Madsen. 2016. Corporate Environmental Sustainability in Danish SMEs: A Longitudinal Study of Motivators, Initiatives, and Strategic Effects. Corporate Social Responsibility and Environmental Management 23 no. 4: 193-212.

- Lynch-Wood, G., and D. Williamson. 2014. Civil Regulation, the Environment and the Compliance Orientations of SMEs. Journal of Business Ethics 125 no. 3: 467-480.
- Lynch-Wood, G., and D. Williamson. 2014. Understanding SME responses to environmental regulation. Journal of Environmental Planning and Management 57 no. 8: 1220-1239.
- Battisti, M., and M. Perry. 2011. Walking the Talk? Environmental Responsibility from the Perspective of Small-Business Owners. Corporate Social Responsibility and Environmental Management 18 no. 3: 172-185.
- Graafland, J., and H. Smid. 2017. Reconsidering the relevance of social license pressure and government regulation for environmental performance of European SMEs. Journal of Cleaner Production 141 no.: 967-977.

4. "SME" AND environment AND food
- 7 results
5. "SME" AND environment AND drink
- 1 result
6. "SME" AND "environmental regulator" AND food (drink)
- 0 results
7. "SME" AND "environmental regulator" ("environmental governance", "environmental program", "environmental authority", "biodiversity governance", "environmental compliance", "going beyond compliance", "voluntary environmental approaches")
- 0 results
8. "SME" AND "environmental sustainability"
- 8 results
- Redmond, J., J.W. Cox, J. Curtis, A. Kirk-Brown, and B. Walker. 2016. Beyond business as usual: how (and why) the habit discontinuity hypothesis can inform SME engagement in environmental sustainability practices. *Australasian Journal of Environmental Management* 23 no. 4: 426-442.
- Stewart, H., and R. Gapp. 2014. Achieving Effective Sustainable Management: A Small-Medium Enterprise Case Study. *Corporate Social Responsibility and Environmental Management* 21 no. 1: 52-64.

9. "SME" AND "voluntary environmental"
- 2 results
10. "SME" AND "voluntary environmental agreement"
- 1 result
11. "SME" AND "environmental agenc*"
- 2 results
12. "voluntary environmental" AND approach
- 47 results
13. "voluntary environmental" AND agreement
- 41 results
- Jones, C. 2010. Exploring new ways of assessing the effect of regulation on environmental management. *Journal of Cleaner Production* 18 no. 13: 1229-1250.
- Borck, J.C., and C. Coglianese. 2009. Voluntary Environmental Programs: Assessing Their Effectiveness. *Annual Review of Environment and Resources* 34 no.: 305-324.
- Segerson, K., and T.J. Miceli. 1998. Voluntary environmental agreements: Good or bad news for environmental protection? *Journal of Environmental Economics and Management* 36 no. 2: 109-130.
14. "voluntary environmental" AND program
- 149 results
- Lee, E., C.S. Jung, and M.S. Hwang. 2016. Investigating supportive conditions for participation in voluntary environmental programs. *Journal of Environmental Planning and Management* 59 no. 7: 1323-1340.

- van der Heijden, J. 2015. What Roles are There for Government in Voluntary Environmental Programmes? *Environmental Policy and Governance* 25 no. 5: 303-315.

Results

Type of Information (1) literature reviews, 2) empirical studies/practical experiences, 3) modelling studies and 4) conceptual papers)	**Citation**	**Spatial Scale**
2) empirical study	"Battisti, M., and M. Perry. 2011. Walking the Talk? Environmental Responsibility from the Perspective of Small-Business Owners. Corporate Social Responsibility and Environmental Management 18 no. 3: 172-185.	New Zeeland
1) literature review / 2) empirical study	"Benito-Hernandez, S., M. Platero-Jaime, and P. Esteban-Sanchez. 2016. The influence of cooperative relations of small businesses on environmental protection intensity. Business Ethics-a European Review 25 no. 4: 416-439.	Spain
1) literature review	"Borck, J.C., and C. Coglianese. 2009. Voluntary Environmental Programs: Assessing Their Effectiveness. Annual Review of Environment and Resources 34 no.: 305-324.	Global
2) empirical study	"Brammer, S., S. Hoejmose, and K. Marchant. 2012. Environmental Management in SMEs in the UK: Practices, Pressures and Perceived Benefits. Business Strategy and the Environment 21 no. 7: 423-434.	UK
4) conceptual paper	"Cassells, S., and K. Lewis. 2011. SMEs and Environmental Responsibility: Do Actions Reflect Attitudes? Corporate Social Responsibility and Environmental Management 18 no. 3: 186-199.	
1) literature review / 2) empirical study	"Dakup, K., H. Fulford, and B. Sutherland. 2014. Investigating the adoption of sustainable green initiatives in Scottish food and drink SMEs. In European Conference on Innovation and Entrepreneurship, 507. Academic Conferences International Limited.	UK
1) literature review / 4) conceptual paper	"del Brío, J.Á., and B. Junquera. 2003. A review of the literature on environmental innovation management in SMEs: implications for public policies. Technovation 23 no. 12: 939-948.	Global
2) empirical study / 4) conceptual paper	Freeman, J. and D. A. Farber (2005). "Modular environmental regulation." Duke law journal: 795-912.	San Francisco Bay delta
3) modelling study	"Graafland, J., and H. Smid. 2017. Reconsidering the relevance of social license pressure and government regulation for environmental performance of European SMEs. Journal of Cleaner Production 141 no.: 967-977.	Europe
4) conceptual paper	Gunningham, N. and M. D. Young (1997). "Toward optimal environmental policy: the case of biodiversity conservation." Ecology LQ 24: 243.	Australia
2) empirical study / 4) conceptual paper	Hawkins, R. (2000). "The use of economic instruments and green taxes to complement an environmental regulatory regime." Water Air and Soil Pollution 123(1-4): 379-393.	European, mainly the UK
2) empirical study / 4) conceptual paper	K. Heiden, C. H., C. Lloyd, P. Taylor (2002). "Working with environmental regulation - An Australian experience." Journal of Petroleum Technology 54(7): 58-59.	Australia
2) empirical study	"Hitchens, D. 2003. Small and medium sized companies in Europe: Environmental performance, competitiveness and management: International EU case studies: Springer Science & Business Media.	Europe
2) empirical study	"Jones, C. 2010. Exploring new ways of assessing the effect of regulation on environmental management. Journal of Cleaner Production 18 no. 13: 1229-1250.	
4) conceptual paper	Karkkainen, B. C. (2000). "Information as environmental regulation: TRI and performance benchmarking, precursor to a new paradigm." Geo. LJ 89: 257.	*
2) empirical study	Kennedy, A. L. (2010). "Using community-based social marketing	Commuties around the

	techniques to enhance environmental regulation." Sustainability 2(4): 1138-1160.	world
2) empirical study	"Lee, E., C.S. Jung, and M.S. Hwang. 2016. Investigating supportive conditions for participation in voluntary environmental programs. Journal of Environmental Planning and Management 59 no. 7: 1323-1340.	
4) conceptual paper	"Lee, S.Y., and R.D. Klassen. 2008. Drivers and enablers that foster environmental management capabilities in small-and medium-sized suppliers in supply chains. Production and Operations management 17 no. 6: 573-586.	
2) empirical study	"Leonidou, L.C., P. Christodoulides, and D. Thwaites. 2016. External Determinants and Financial Outcomes of an Eco-friendly Orientation in Smaller Manufacturing Firms. Journal of Small Business Management 54 no. 1: 5-25.	Cyprus
2) empirical study	"Lewis, K.V., S. Cassells, and H. Roxas. 2015. SMEs and the Potential for A Collaborative Path to Environmental Responsibility. Business Strategy and the Environment 24 no. 8: 750-764.	New Zeeland
4) conceptual paper	"Lynch-Wood, G., and D. Williamson. 2014. Civil Regulation, the Environment and the Compliance Orientations of SMEs. Journal of Business Ethics 125 no. 3: 467-480.	
2) empirical study	"Lynch-Wood, G., and D. Williamson. 2014. Understanding SME responses to environmental regulation. Journal of Environmental Planning and Management 57 no. 8: 1220-1239.	UK
1) literature review / 2) empirical study	"Mazur, E. 2012. Green transformation of small businesses: Achieving and going beyond environmental requirements. OECD Environment Working Papers no. 47: 0_1.	OECD countries
"		Malaysia
2) empirical study / 3) modelling study	"Nejati, M., A. Amran, and N.H. Ahmad. 2014. Examining stakeholders' influence on environmental responsibility of micro, small and medium-sized enterprises and its outcomes. Management Decision 52 no. 10: 2021-2043.	
4) conceptual paper	"Parker, C.M., J. Redmond, and M. Simpson. 2009. A review of interventions to encourage SMEs to make environmental improvements. Environment and Planning C-Government and Policy 27 no. 2: 279-301.	UK
2) empirical study	"Patton, D., and I. Worthington. 2003. SMEs and environmental regulations: a study of the UK screen-printing sector. Environment and Planning C-Government and Policy 21 no. 4: 549-566.	
4) conceptual paper	"Perez-Sanchez, D., J. Barton, and D. Bower. 2003. Implementing environmental management in SMEs. Corporate Social Responsibility and Environmental Management 10 no. 2: 67-77.	UK
2) empirical study	"Petts, J. 2000. The regulator—regulated relationship and environmental protection: perceptions in small and medium-sized enterprises. Environment and Planning C: Government and Policy 18 no. 2: 191-206.	UK, Eastern Europe
2) empirical study	"Pimenova, P., and R. Van Der Vorst. 2004. The role of support programmes and policies in improving SMEs environmental performance in developed and transition economies. Journal of Cleaner Production 12 no. 6: 549-559.	UK
4) conceptual paper	"Poonprasit, M., P.S. Phillips, A. Smith, W. Wirojanagud, and D. Naseby. 2005. The application of waste minimisation to business management to improve environmental performance in the food and drink industry. In In: Procs of the 7th Finnish Conf on Environmental Science, Jyvaskyla 2005.	
4) conceptual paper	"Redmond, J., J.W. Cox, J. Curtis, A. Kirk-Brown, and B. Walker. 2016. Beyond business as usual: how (and why) the habit discontinuity hypothesis can inform SME engagement in environmental sustainability practices. Australasian Journal of Environmental Management 23 no. 4: 426-442.	UK
2) empirical study	Reid, C. T. (2011). "The Privatisation of Biodiversity? Possible New Approaches to Nature Conservation Law in the UK." Journal of Environmental Law 23(2): 203-231.	UK

4) conceptual paper	"Revell, A., and R. Rutherfoord. 2003. UK environmental policy and the small firm: broadening the focus. Business Strategy and the Environment 12 no. 1: 26.	UK
2) empirical study	"Revell, A., D. Stokes, and H. Chen. 2010. Small businesses and the environment: turning over a new leaf? Business strategy and the environment 19 no. 5: 273-288.	Denmark
2) empirical study	Reyes-Rodriguez, J.F., J.P. Ulhoi, and H. Madsen. 2016. Corporate Environmental Sustainability in Danish SMEs: A Longitudinal Study of Motivators, Initiatives, and Strategic Effects. Corporate Social Responsibility and Environmental Management 23 no. 4: 193-212.	UK, Netherlands
2) empirical study	"Rutherfoord, R., R.A. Blackburn, and L.J. Spence. 2000. Environmental management and the small firm: an international comparison. International Journal of Entrepreneurial Behavior & Research 6 no. 6: 310-326.	Europe
2) empirical study	"Saez-Martinez, F.J., C. Diaz-Garcia, and A. Gonzalez-Moreno. 2016. Factors Promoting Environmental Responsibility in European SMEs: The Effect on Performance. Sustainability 8 no. 9: 14.	Lithuania
2) empirical study / 3) modelling study	"Salciuviene, L., R. Hopeniene, and A. Dovaliene. 2016. Perceived Corporate Social Responsibility and its Implementation in Practice: The Case of Lithuanian Small and Medium-Sized Enterprises. Inzinerine Ekonomika-Engineering Economics 27 no. 4: 479-490.	Across scales
4) conceptual paper	Sampford, C. (2002). "Environmental governance for biodiversity." Environmental Science & Policy 5(1): 79-90.	Finland, Germany, The Netherlands, Spain, UK, Hungary, Austria, Australia, Belgium, Canada, Switzerland, Denmark, Greece, France, Italy, Ireland, Luxemburg, New Zealand, Portugal, Sweden.
1) literature review / 2) empirical study	Siebert, R., M. Toogood, et al. (2006). "Factors affecting European farmers' participation in biodiversity policies." Sociologia ruralis 46(4): 318-340.	exemplary SME
2) empirical study	"Stewart, H., and R. Gapp. 2014. Achieving Effective Sustainable Management: A Small-Medium Enterprise Case Study. Corporate Social Responsibility and Environmental Management 21 no. 1: 52-64.	Hong Kong
2) empirical study	"Studer, S., R. Welford, and P. Hills. 2005. Drivers and barriers to engaging small and medium-sized companies in voluntary environmental initiatives. The Centre of Urban Planning and Environmental Management. The University of Hong Kong: Hong Kong no.	UK
2) empirical study / 4) conceptual paper	"Taylor, C., S. Pollard, S. Rocks, and A. Angus. 2012. Selecting policy instruments for better environmental regulation: a critique and future research agenda. Environmental Policy and Governance 22 no. 4: 268-292.	UK
2) empirical study	"Taylor, C.M. 2013. An evidence base and critique for environmental regulatory reform. no.	UK
2) empirical study	Taylor, C.M., S.J. Pollard, S.A. Rocks, and A.J. Angus. 2015. Better by design: Business preferences for environmental regulatory reform. Science of the Total Environment 512 no.: 287-295.	Australia, the Netherlands, Singapore, the United States
2) empirical study	van der Heijden, J. 2015. What Roles are There for Government in Voluntary Environmental Programmes? Environmental Policy and Governance 25 no. 5: 303-315.	UK
4) conceptual paper	Wiener, J. B. (1999). "Global environmental regulation: Instrument choice in legal context." The Yale Law Journal 108(4): 677-800.	
2) empirical study	Williamson, D., G. Lynch-Wood, and J. Ramsay. 2006. Drivers of environmental behaviour in manufacturing SMEs and the implications for CSR. Journal of Business Ethics 67 no. 3: 317-330.	UK
2) empirical study	Wilson, C.D.H., I.D. Williams, and S. Kemp. 2012. An Evaluation of	

	the Impact and Effectiveness of Environmental Legislation in Small and Medium-Sized Enterprises: Experiences from the UK. Business Strategy and the Environment 21 no. 3: 141-156.	
1) literature review / 2) empirical study	Woo, C., Y. Chung, D. Chun, and H. Seo. 2014. Exploring the Impact of Complementary Assets on the Environmental Performance in Manufacturing SMEs. Sustainability 6 no. 10: 7412-7432.	Australia
4) conceptual paper	Wright, I. and S. Clague (2000). Sustainability-the 21st century agenda: future directions in environmental law and policy. Proceedings of the 3rd Queensland Environmental Conference: Sustainable Environmental Solutions for Industry and Government; a Focus of Sound, Practical and Economically Viable Solutions for Industry and Government., Environmental Engineering Society (Queensland Chapter).	UK
4) conceptual paper	SEPA (2016). "Biodiversity." from http://www.sepa.org.uk/environment/biodiversity/	UK
4) conceptual paper	SEPA (2016). "Better environmental regulation." from http://www.sepa.org.uk/regulations/how-we-regulate/better-environmental-regulation/.	UK
4) conceptual paper	SEPA (2016). One Planet Prosperity – Our Regulatory Strategy.	Germany
2) practical experience	Global Nature Fund & Bodensee-Stiftung (2014): Biodiversität in Standards und Qualitätssiegeln der Lebensmittelbranche. Handlungsempfehlungen.	Europe
2) practical experience	European Business & Biodiversity Campaign: Biodiversity in Standards and Labels for the Food Sector. Website. http://www.business-biodiversity.eu/de/willkommen	Europe
2) practical experience	European Business & Biodiversity Campaign (2016): Biodiversity in Standards and Labels for the Food Sector. Baseline Report	Germany
2) practical experience	Biodiversity in Good Company. Business and Bidoiversity Initiative. Website. http://www.business-and-biodiversity.de/en/	Germany
2) practical experience	Biodiversity in Good Company (2016): Mainstreaming the Topic of Biodiversity in Corporate Sustainability Management Experience and Recommendations from the 'Biodiversity in Good Company' Initiative. Position Paper on the occasion of CBD-COP 13	Ireland
2) practical experience	Irish Forum on Natural Capital. Website. http://www.naturalcapitalireland.com/	Scotland (UK)
2) practical experience	Scottish Forum on Natural Capital. Website. http://naturalcapitalscotland.com/	UK
2) practical experience	Valuing Nature (2015): Corporate Natural Capital Accounting. Report. http://valuing-nature.net/news/corporate-natural-capital-accounting	
2) practical experience	Cool Farm Tool. https://coolfarmtool.org/	UK
2) practical experience	Natural Capital Leader's Platform. http://www.cisl.cam.ac.uk/business-action/natural-resource-security/natural-capital-leaders-platform	
2) practical experience	Cambridge Conservation Initiative: Conserving wild pollinators and increasing food security by strengthening the sustainable management of company supply chains. http://www.conservation.cam.ac.uk/collaboration/conserving-wild-pollinators-and-increasing-food-security	global
2) practical experience	"Global Reporting Initiative (2007): Biodiversity	UK
a GRI Reporting Resource"		
2) practical experience	John Lewis Partnership plc (2016): It's your business. Annual Report and Accounts 2015.	
2) practical experience	Natural Capital Coalition (2016): NATURAL CAPITAL PROTOCOL PRINCIPLES AND FRAMEWORK	
2) practical experience	Natural Capital Coalition (2016): Report on the Consultation of the draft Natural Capital Protocol and sector guides	Europe, Germany
2) practical experience	Natural Capital Coalition (2016): NATURAL CAPITAL PROTOCOL FOOD AND BEVERAGE SECTOR GUIDE	

2) practical experience	The sustainability Code (2015): Matching the criteria of the Sustainability Code to the EU's non-financial reporting requirements	Europe
2) practical experience	Natural Capital Coalition: Natural Capital Hub. Website. http://naturalcapitalcoalition.org/hub/	
2) practical experience	EU Business @ Biodiversity Platform. Website. http://ec.europa.eu/environment/biodiversity/business/index_en.htm	Germany
2) practical experience	EU Business @ Biodiversity Platform:	Europe
2) practical experience	EU Business @ Biodiversity Platform: Rapid Assessment HiPP. A model production operation and indicators for integration of biodiversity into organic farming	Europe
2) practical experience	EU Business @ Biodiversity Platform: Rapid Assessment CDP Europe. An environmental information system for the food, beverage and agricultural value chain	Europe
2) practical experience	"B@B Workstream 2: Innovation for Business and Biodiversity	New Zeeland
2) practical experience	"EU Business and Biodiversity Platform. Workstream 2: Innovation for Biodiversity and Business. CDP EUROPE: an environmental reporting system for the food, beverage and agricultural value chain – ANALYSIS OF THE OPPORTUNITY	Spain