

BIODIVERSITY AND ECOSYSTEM SERVICES: ACCOUNTING FOR SHARED PRIORITIES

1.0 SUMMARY

With the last phase of negotiations for the United Nations Sustainable Development Goals (SDGs) in sight, the question of implementation is now looming. At Measure What Matters¹, we believe that for the SDGs to be transformative they need to be relevant to, and managed by, multiple stakeholders beyond the UN system. As such, the targets and indicators attached to each Goal need to be practicable at different levels of decision making – community, corporate and national. However, our hypothesis is that the principal measurement, management and reporting frameworks currently are misaligned and data is becoming increasingly fragmented. If we fail to consider the linkages between current and proposed frameworks then there is every risk that the SDGs will be confusing or worse – irrelevant.

Post September 2014 the SDG negotiations moved from the macro goal topics to focus on their associated **targets and indicators**. This provides us with an opportunity to focus on the question of **how to ensure alignment between different frameworks?** To aid the process of alignment, Measure What Matters is producing a set of discussion papers focused on the question of alignment. This paper focuses on **Biodiversity and Ecosystem Services (BES)** (others include water and inequality). Given the current rate of BES loss, the case for government, business and civil society to measure and manage BES using aligned processes is urgent. We would be grateful for your views on the issues of alignment raised in this paper.

Definition and Scope

The scope is BES as these are inter-connected and initiatives increasingly focus on them together for this reason. Further, the wider Natural Capital terminology which includes BES and adds its financial value is increasingly used so these initiatives have also been included. This will allow a more comprehensive analysis of current alignment status and opportunities going forward. The definitions for BES and Natural Capital are as follows:

Biodiversity is the variability among living organisms within and between genes, species and ecosystems. Biodiversity is crucial for healthy ecosystem services.

Ecosystem services are the direct and indirect value or benefits people receive from ecosystems. These services are defined as **provisioning** e.g. food and fresh water, **regulating** e.g. climate regulation and flood control and **cultural** e.g. recreation and aesthetic as illustrated in **figure 1**.² Services across eight broad habitats are included (forests, coastal, marine, freshwater, urban, grasslands, mountains and farmland).

Natural capital is the stock of natural assets (air, water, land, habitats) that provide goods and services which benefit society, the economy and business.³

Aims

The key aims of the paper are to ask: How are BES and Natural Capital being measured by business, governments and international institutions? To what extent do these measurement frameworks align? If not, are their opportunities for alignment and how might this be done?

Provisioning services	
Food	crops
	livestock
	capture fisheries
	aquaculture
	wild foods
Fiber	timber
	cotton, silk
	wood fuel
Genetic resources	
Biochemicals, medicines	
Water	freshwater
Regulating services	
Air quality regulation	
Climate regulation – global	
Climate regulation – regional and local	
Water regulation	
Erosion regulation	
Water purification and waste treatment	
Disease regulation	
Pest regulation	
Pollination	
Natural hazard regulation	
Cultural services	
Spiritual and religious values	
Aesthetic values	
Recreation and ecotourism	

Figure 1: Definitions of ecosystem services

Conclusions

In summary our conclusions are:

- There is a wide range of different BES and Natural Capital frameworks and performance metrics that have evolved over time, for different applications and users – government, business, NGOs and practitioners (across sustainability, economics, accounting and finance). As a result they have inherent misalignment. At the international and national policy level for the Convention of Biological Diversity (CBD), proactive measures have been taken to align targets and indicators. This presents an important precedent which can be built on. Outside of this, there is minimal alignment across the key frameworks (corporate, national and global).
- There are significant data gaps and metrics challenges for BES and Natural Capital initiatives at present. As this is an evolving field with much current activity this also represents a timely opportunity to build in alignment across the policy and business data needs. One example is a need to develop and link biodiversity data so it can inform results of conservation actions and progress indicators for government. Overall to have meaningful performance benchmarks at all levels in the future, emerging business metrics and data must be developed to be consistent with classifications being used in national accounting systems; and align with international frameworks.

While the requirements of different stakeholders necessarily differ, in this paper we propose that there needs to be a greater inter-connectivity between different frameworks, targets and performance metrics so that **all stakeholders and governments can better manage their shared assets, risks, opportunities and responsibilities**. We make recommendations and pose key questions on this basis in **5.0**. Please let us know your views.

2.0 INTRODUCTION

The case for government, business and civil society to measure and manage BES is urgent. The rationale is that more than 60 percent of vital BES is in global decline because of overexploitation⁴. As examples, wildlife populations have more than halved since the 1970s and freshwater species are declining fastest, with three quarters lost since the 1970s.⁵ The World Economic Forum includes biodiversity loss and ecosystem collapse in their top ten global risks⁶. Financially, conservative estimates value nature's services at approximately US\$50 trillion/annum (using 2010 figures). To put this in proportion, this is in comparison to a US\$63 trillion GDP for that year. More recent estimates are over US\$125 trillion/year.^{7, 8} By contrast, only US\$300 billion is estimated as needed to preserve our biodiversity. This includes the cost of sustainable management of agriculture, forests, fresh water, coastal and marine ecosystems.⁹ The business case for industry activities with high dependencies on BES such as extractives, food, energy generation, forestry, water utilities, pharmaceuticals and tourism is particularly urgent. For example, an estimated 25-50 percent of the pharmaceutical market is derived from nature's genetic diversity. It is estimated the earth is losing one major drug every two years due to BES degradation.¹⁰ Government, NGO and business BES measurement and reporting initiatives have been growing for many years in response to these rationales. Financial valuation is increasingly added with new initiatives for Natural Capital Accounting (NCA) emerging. Overall, the business case is largely driven in the interests of risk mitigation, security of resource supply, resilience and maintaining natural capital assets into the long term. At the bigger picture the science of our planetary boundaries clearly defines the current status of BES constraints and degradation. Going forward this science can provide the baseline guidance for how to manage, restore and enhance our natural systems such that government and business can sustainably utilise their value into the long term. Aligned measurement metrics can support policy and market incentive structures to enable this.

3.0 HOW IS BES BEING MEASURED NOW AT DIFFERENT LEVELS?

There are a wealth of different frameworks, guides and tools available for assessing, managing and reporting BES and Natural Capital. These have been developed for different applications and users – government, corporations and financial institutions – and evolved across different timelines as new needs arose. As a result, there are inherent disconnects in alignment, as this was never the intention. The key initiatives are outlined in **Table 1** and summarised below for government and business users. A list of more BES initiatives is in **Annex 1**.

TABLE 1: Common BES & Natural Capital frameworks for business, governments and global organisations

BUSINESS	GOVERNMENTAL	GLOBAL
REPORTING (MICRO LEVEL) <ul style="list-style-type: none"> • CDP Forest Disclosure Project • Global Reporting Initiative • LIFE Certification Standards • CDSB Framework 	REPORTING (MACRO LEVEL) <ul style="list-style-type: none"> • SEEA & CICES • WAVES • EU MAES • BIP Biodiversity Indicators Partnership • UK National Ecosystem Assessment 	REPORTING (ALL LEVELS) <ul style="list-style-type: none"> • SDG Indicators • CBD & Aichi Targets
ASSESSING/MANAGING <ul style="list-style-type: none"> • WRI/WBCSD ESF & Valuation guides • EU Business and Biodiversity Platform's NCA guide • Natural Capital Committee NCA guide • BS 8583:2015 • Natural Capital Project InVEST • Holcim / IUCN Biodiversity Indicator and Reporting System • IPIECA Oil/Gas • ICMM Mining • IBAT • IBIS • BBOP • IFC Performance Standard 6 • Biodiversity 4 Banks 	ASSESSING/MANAGING <ul style="list-style-type: none"> • EU MAES • IUCN Red List of Threatened Species and Red List Index • GLOBIO Tool & Mean Species Abundance Index • Living Planet Index • Wild Bird Index 	ASSESSING/MANAGING <ul style="list-style-type: none"> • UN MA • Planetary Boundaries

Government - national and international policy

At the international level, common frameworks relevant to BES and Natural Capital include the UN [System of Environmental and Economic Accounts \(SEEA\)](#)¹¹, UN Millennium Ecosystem Assessment (MA) (2005)¹², Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs). The UN MA and also Planetary Boundaries frameworks provide important science based frameworks for BES relevant to policy applications. As of May 2015, the main draft SDG focusing on BES is *SDG Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.*¹³ The draft SDG 15 sub goals are in **Annex 2**. BES is such a broad category that it is considered under other SDGs mainly for water (*SDG5*) and *SDG14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.*

At international and national policy levels, key elements of BES measurement, management and reporting activity are the roll out of SEEA, the linked World Bank Wealth Accounting and Valuation of Ecosystem Services ([WAVES](#))¹⁴ global programme and the UN [Convention on Biological Diversity](#) (CBD). These focus on ensuring nature's assets are reflected in national growth strategies, accounts and evolving "Beyond GDP/GNP" metrics. Overall, this is designed to support the development of policy, natural asset management and indicators to track progress on reversing BES or natural capital degradation. The [Common International Classification of Ecosystem Services](#)¹⁵ (see Annex 3), developed from the European Environment Agency (EEA) environmental accounting, is informing the basic classifications used to define ecosystem services and indicators. CICES is designed to be more comprehensive for accounting purposes than the Millennium Ecosystem Assessment so supersedes this at the metrics level. As an alternative to CICES, the US EPA has developed the concept of Final Ecosystem Goods and Services (FEGS)¹⁶ as a foundation for defining, classifying, and measuring ecosystem services. The final classification system is still being agreed. To support these international and national policy processes, the [Intergovernmental Platform on Biodiversity and Ecosystem Services](#) (IPBES) provides the scientific evidence base on the state of the planet's BES.

GOALS	TARGETS					
A Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society	1 Awareness of BD values	2 Integration of BD values	3 Incentives	4 Use of nat. resources		
B Reduce the direct pressures on biodiversity and promote sustainable use	5 Loss of habitats	6 Sust. fisheries	7 Areas under sust. mgt.	8 Pollution	9 IAS	10 Vulnerable eco.
C To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity	11 Protected areas	12 Preventing extinctions	13 Agricultural BD			
D Enhance the benefits to all from biodiversity and ecosystem services	14 Essential eco. services	15 BD & carbon stocks	16 ABS implementati			
E Enhance implementation through participatory planning, knowledge management and capacity building	17 NBSAPs	18 Trad. knowledge	19 BD knowledge	20 Resource mobilization		

Figure 2: CBD Strategic Goals and Targets (Source: BIP <http://www.bipindicators.net/globalindicators>)

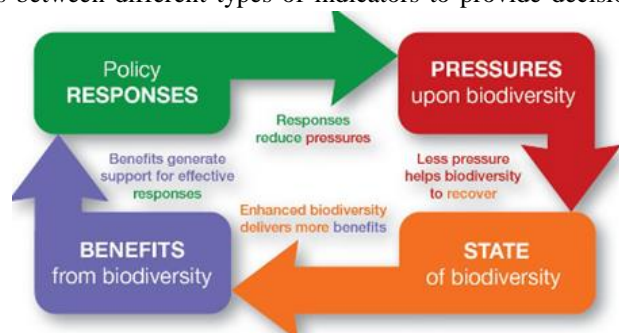
The CBD Strategic Plan for Biodiversity 2011-2020, including the [Aichi Biodiversity Targets](#) represents the core framework for managing and monitoring biodiversity at national country levels. The strategic goals (A-E) and targets (illustrated in figure 2) are key policy drivers for improving the status of biodiversity and enhancing ecosystem services through reducing ecosystem degradation and increasing restoration. These goals have 20 sub targets as illustrated. Beyond UN SEEA and CBD, policies focusing on sustainable agriculture and resilience increasingly provide a policy mandate relevant to BES that also provide alignment opportunities especially at national levels.

The [Biodiversity Indicators Partnership \(BIP\) 2020 indicators](#) (ongoing and replacing the earlier BIP 2010) measure progress against the Aichi targets and CBD. The BIP has undergone an extensive review process to align BES indicators in the BIP linked indicators project. In the first instance 17 of the 20 Aichi targets are covered by at least one of the BIP indicators. In the coming years the Partnership will endeavour to fill gaps and expand its set of indicators to ensure that a comprehensive framework of global indicators is available to monitor progress. The Streamlining European Biodiversity Indicators (SEBI) process coordinated by EEA¹⁷ also informed this. Guidance has been produced to support the development of National Biodiversity Strategies and Action Plans (NBSAPs) and Guidance for National Indicator Development and Use. A lesson from the NBSAPs is that aligning the policy drivers is an important first step to determine the most effective shared priorities before aligning metrics. For example, using development and social drivers can be more effective than BES directly, but the BES benefits can still be achieved.

Overall, the BIP linked indicators project is a good case example of policy users recognising a lack of alignment in the first CBD indicator framework and working to resolve this in the BIP 2020¹⁸. More information on how this was done and key lessons for alignment is in **Text Box 1**.

TEXT BOX 1: THE BIP LINKED INDICATORS PROJECT – ALIGNING BIODIVERSITY INDICATORS

The original CBD indicators existed in isolation and it was not clear how they related to each other, nor how they could be used to assess and inform policies for stopping biodiversity loss. The BIP worked with other policy and NGO stakeholders to show the feasibility of establishing linkages between different types of indicators to provide decision-makers with the tools they need to tackle biodiversity loss effectively. As illustrated, the result is four kinds of biodiversity indicators which are linked together in a set that **connects policies to outcomes**. The intent is these indicators measure the implementation of policies, their effect on the **pressures** of biodiversity, the consequences for the **state** of biodiversity, and the impacts on the **availability of benefits** (ecosystem services) that people derive from biodiversity. However, there is a lesson to be learned on linking indicators to outcomes. Despite the significant streamlining and alignment activities, a study



published in *Science* in 2014 reveals that, despite some progress on reaching an internationally agreed set of biodiversity targets BES is still declining and some 2020 targets are unlikely to be reached. It found consumption of natural resources is increasing and large scale habitat loss across wetlands and coral reefs. At current rates, targets to halve the rate of natural habitat loss and sustainably harvest all fish stocks will not be achieved by 2020¹⁹.

One missed opportunity in this linking project was to build in alignment with business indicators. This is a gap that still needs to be addressed, but there are no plans within the BIP linked indicators project to do this.

As part of SEEA and CBD implementation, national programmes are rolling out in UN member countries. For example, for the EU the [Mapping and Assessment of Ecosystems and their Services in Europe](#) (MAES) is a key element of the EU Biodiversity Strategy to 2020. The CICES has been accepted for use by MAES showing alignment at this level. As one national example, the UK has developed a [National Ecosystem Assessment](#) (NEA) approach with national measurement and reporting metrics. The [Natural Capital Committee](#) support government to integrate natural capital into UK national accounts and market activities. For example, they have developed draft Natural Capital Accounting guidance for corporations. At national level, Payments for Ecosystem Services (PES) are increasingly used by governments to create market incentives for biodiversity²⁰, forest and other ecosystem conservation. UN [REDD](#) (Reducing Emissions from Deforestation and forest Degradation) is one example²¹. The UK government [Payments for Ecosystem Services](#) ²² guidance has specified performance metrics which are linked with evolving NEA policy.

Business and Finance

A plethora of approaches and tools have, and continue to evolve for business to measure, manage and report BES. Their scope varies from biodiversity only focusing on species, or also including wider ecosystem services. Their application can be at the landscape or seascape level, as well as across the supply chain. Overall, these provide guidance and performance metrics to assess the significant impacts and dependencies associated with BES. In some management practices including biodiversity action plan development and implementation are included. Financial valuation is slowly being incorporated as an additional feature as part of the growing natural capital framing of this topic. A summary of examples of these are in **Text Box 2** with descriptions to show the diversity in purpose, scope and context.

TEXT BOX 2: DESCRIPTION OF KEY BES BUSINESS APPROACHES AND TOOLS

For biodiversity, business model concepts such as “**Net Positive Impact (NPI)**” or “**No Net Loss (NNL)**” of biodiversity and associated guidance and indicators have come from sectors including extractives, oil & gas and construction. [No Net Loss \(NNL\) for biodiversity](#)²³ is the point at which impacts on biodiversity are balanced by measures taken to avoid and minimize them. For example, Rio Tinto define the [Net Positive Impact \(NPI\)](#) goal as ensuring their actions have positive effects on biodiversity that balance, as well as outweigh the inevitable negative effects from mining and mineral processing²⁴. Rio Tinto and IUCN have developed the [Net Positive Impact Protocol](#) for biodiversity assessment and verification. The construction company Holcim and IUCN have developed the [Biodiversity Indicator and Reporting System](#) (BIRS)²⁵ which quantifies the condition of habitats on their sites. [IPIECA](#) oil and gas industry association have developed Biodiversity and Ecosystem Services Guidance. Mining and Biodiversity Good Practice Guidance has been produced by the [International Council on Mining and Metals \(ICMM\)](#). The IFC [Guide to Biodiversity for the Private Sector](#) provides generic and sector specific guidance for biodiversity management including for the agribusiness, cement, tourism, mining, forestry, energy, water and retail sectors. Looking at wider BES guides and tools, examples of those arguably best known to business include the following.

- Support tools and models focusing on assessing biodiversity and threats to species include [Biodiversity Index Tool](#), [Integrated Biodiversity Assessment Tool \(IBAT\)](#), [Integral Biodiversity Impact Assessment System \(IBIS\)](#) and [GLOBIO Tool & Mean Species Abundance Index](#)
- The WRI/WBCSD [Corporate Ecosystem Review \(ESR\) and Valuation](#) provide generic high level guidance any sector can use to assess ecosystem services.
- [InVEST](#) models and values ecosystem services at the landscape level. This enables quantified assessments of tradeoffs associated with alternative management choices and identification of areas where investment in natural capital can enhance human development and conservation.
- The UK [Natural Capital Committee](#) guidelines for Developing Corporate Natural Capital Accounts²⁶ for corporations and large landowners enable natural capital assets and liabilities to be included in the balance sheet.
- The [EU Business and Biodiversity Platform’s Natural Capital Accounting](#) draft guidance and tool helps business to choose valuation techniques²⁷
- The [LIFE Certification Standard](#) assesses businesses impacts on biodiversity, evaluates and scores biodiversity conservation actions.
- The [Business and Biodiversity Offsets Programme \(BBOP\)](#) standard enables an assessment of no net loss or a net gain of biodiversity based on a mitigation hierarchy (avoid, minimise, restore, offset).

- The [BS 8583:2015](#) is a biodiversity management standard
- [IFC Performance Standard 6](#)²⁸ guidance provides an environmental and social risk management framework that incorporates ecosystem services and biodiversity.

Many Natural Capital Accounting metrics initiatives are in development to include the [Natural Capital Coalition's](#) Natural Capital Protocol expected in 2016. For sustainability reporting metrics, the [Global Reporting Initiative](#) guidelines [G4](#) version includes impacts and dependencies on natural resources as well as biodiversity. The [CDP Forest Disclosure Program](#) provides a framework for disclosure on the four main agricultural commodities responsible for most deforestation. The metrics are based on supply chain targets for the commodities, so a different approach than the other initiatives. The [Climate Disclosure Standards Board \(CDSB\) Framework](#) offers a method for disclosure incorporating natural capital and wider environmental information in an organization's mainstream report.

For Financial Institutions, guidance and indicators to assess BES risk in portfolios and investment products are emerging. Key initiatives include the [Natural Capital Declaration](#) ongoing work to develop standard methods for integrating natural capital in Financial Institutions. Under the Equator Principles framework, the [Biodiversity for Banks \(B4B\)](#) program gathers existing best practice guides to support incorporating BES risks and opportunities in lending decisions.

In practice, despite the large volume of BES and Natural Capital guides and tools for business, uptake and reporting is limited to a small number of early adopters. This is largely due to a lack of regulatory and market incentives. In addition, opaque terminology such as BES and a lack of standardised tools and metrics are also contributing factors.

Data

For both the government and business BES initiatives, the supporting data is limited with many challenges and little alignment. Data for some species and habitats are very difficult to get. Differences across species, ecosystem services and world geographies add to this challenge. At present data is limited, often unreliable, inaccessible or out of date. The SEEA led national accounting systems are making progress, but still new so there is an opportunity to build alignment as data gaps for government and business are filled. Some key BES data sources include the World Conservation Monitoring Centre (UNEP-WCMC) databases e.g. [World Database on Protected Areas, species database and datasets, tools](#), IUCN's knowledge products such as the [IUCN Red List of Threatened Species](#)TM and [Living Planet Index](#). These are generally inaccessible for business users and not integrated in existing databases and collection systems business use. For biodiversity data biases towards terrestrial, vertebrate, "charismatic" species and temperate areas/species are often highlighted. Recent data and monitoring system initiatives using remote sensing and satellite technology provide opportunities to leapfrog. Examples include Microsoft's [Global Ecosystems Model \(GEM\)](#), Google and WRI's [Global Forest Watch](#), [Natural Capital from Space](#) and [Group on Earth Observations](#).

4.0 CONCLUSIONS ON ALIGNMENT/MISALIGNMENT AT PRESENT

There is a wealth of measurement, management and reporting initiatives for BES and Natural Capital. The developing SDG15, UNSEEA and CBD provide the main international and national policy frameworks, targets and indicators. As a separate exercise, many BES guides and tools for corporations have evolved and are growing under the Natural Capital framing. Several sectors including extractives, oil & gas and construction have developed bespoke guides and indicators. New initiatives are also emerging for Financial Institutions. There is little alignment across these business and policy initiatives. There is a strong case for coherent metrics to support systemic assessment, management and reporting of BES across business and government (national and international) to measure progress against shared priorities. There is a proactive approach already in place to get alignment across international and national levels for the CBD targets and indicators. This sets a precedent which can be built on. Lessons learnt from this show that as a first step it is important to identify common priorities and drivers for policies that can provide the required BES benefits. These could be in a development or societal context depending on the country, as distinct from for BES management alone. After this, streamlined indicators should be agreed that connect policies to outcomes in government, business and civil society building in alignment where feasible, but allowing flexibility for the bespoke requirements of different users. The remaining SDG process provides the ideal opportunity to incorporate these lessons.

A detailed assessment of the BES indicators and performance metrics show there is a wide range of categories used across the business and policy initiatives (national and international) with little alignment at the indicator level. **Annex 4** illustrates the detailed categories for a selection of key initiatives. **Table 2** summarises the key BES categories that arise across each of the stakeholder groups.

Table 2: Analysis of categories of BES assessment, management and reporting across stakeholder groups

	Business only	National only	International
Biodiversity loss- threats to species			
Generic diversity			
Ecosystem services for Habitats/Biomes			
Impacts / State of BES			
Benefits sharing			
Awareness			
Action Plans			
Infrastructure			
Restoration & Sustainable Management			
Decommissioning			
Risk & Cost			
Reporting			
Governance			

Regarding data, there are many gaps and challenges for BES. At present, the main focus is on species abundance and distribution. Gaps in the assessment and management metrics include understanding the cause and effect of biodiversity impacts and dependencies. The CBD BIP2020 is the only metric including this. Otherwise, indicators at present focus on determining the BES status. This is largely because of the difficulty in determining the causes of biodiversity changes in an ecosystem where there are many threats. While the IUCN Red List has threatened species information that includes perceived threat, collection of data to incorporate location conditions and likely threats would be a valuable addition to understanding cause and effects better. Overall, linking biodiversity data such that it can inform results in terms of conservation actions and progress indicators for government, corporate, investment and NGO uses is needed. As this is an evolving field with much current activity this also represents an opportunity to build in alignment across the policy and business data needs.

Other key gaps in the business initiatives are that BES indicators are largely excluded in Life Cycle Assessment (LCA) and Environmental Management Systems so are missed in the mainstream environmental assessment, databases and management tools business use. This is a recognised gap in LCA. Some limited activities are focusing on adding these indicators, but at present there is a strong disconnect in the LCA and BES metrics. Further, these business metrics need to be consistent with classifications being used in national accounting systems such as the CICES. This will ensure national and business performance benchmarks and progress tracking are meaningful in the future.

5.0 ALIGNMENT OPPORTUNITIES

There is unequivocal evidence that the current measurement, management and reporting initiatives for BES and Natural Capital are misaligned across key frameworks (corporate, global national). This is a serious challenge to halting the degradation of BES so urgently required. There is a clear requirement to build in alignment across shared priorities. The following are recommended opportunities for alignment that can accelerate progress on this:

- i. As the development of the SDGs, UNSEEA and CICES are still in progress this offers an ideal opportunity to build alignment on the international BES policy metrics taking the CBD BIP2020 linked indicator process into account. The international policy activities to develop SDG 15 have already called for an integrated approach and alignment with UNSEEA and CBD performance metrics is feasible.

- ii. For national policy makers the case for co-ordination with business BES and Natural Capital Accounting metrics is strong to ensure progress can be measured at country levels. In order to ensure the SDGs have relevance and transformative potential they also need have at least a high level connection with the metrics used in corporations, financial institutions as well as NGO communities. For these reasons, alignment with key BES and Natural Capital initiatives in these stakeholder communities is important.
- iii. Within business BES and Natural Capital tools there is misalignment across assessment and management approaches. Harmonisation and integration of BES indicators in existing business assessment tools, such as LCA, and management, such as EMS, would facilitate business engagement which is very limited at present.
- iv. BES data gaps need to be filled to meet business and policy (national and international) performance metrics requirements. These should be integrated with existing data systems for collection and management that policy and business already use. For policy this can be in line with national accounting systems tailored to the local data needs. For business this can be aligned with LCA databases.

The following practical next steps are recommended to ensure the opportunities are captured:

- A focused work stream on alignment is required in the post 2015 SDG process. A commitment to this should be included in the implementation process for the SDGs expected to be outlined in the September 2015 SDGs UN agreement.
- The work stream should encompass key stakeholders at the local, national and international levels from a core group of BES and Natural Capital initiatives from government, NGOs and business. They should have a focused, practical, time limited mandate to inform the post 2015 SDG process with the aim of improving coherence and alignment across global, national and corporate BES goals, supporting metrics and data in line with the above suggestions.
- For business – with business champions, facilitate the the integration of BES and Natural Capital metrics into mainstream business tools such as LCA and EMS.
- To address data gaps for both policy and business, include key stakeholders managing software tools and databases to engage on alignment opportunities.

As a key aim of this paper is to prompt discussion, please let us know your views:

KEY CONSULTATION QUESTIONS

1. **Do you agree with the need to align BES reporting** at different levels of decision making (i.e. corporate, national, local and global)? Please explain your answer highlighting the opportunities and/or challenges of such alignment.
2. **How might SDG 15 and its implementation be framed and measured** to enable the greatest changes towards more cohesive corporate and national reporting on measuring BES performance, and thus accelerate progress?
3. **What practical recommendations** do you have for bringing about greater alignment (at all three levels) between corporate, national and global reporting on BES performance measurements?

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ANNEX 1: LIST OF BES INITIATIVES

Guides, Tools and Data Sources: BES and Natural Capital Assessment, Management and Valuation

- [NatureServe Biodiversity Indicators Dashboard](#)
- [Biodiversity Intactness Index](#)
- [Co\\$ting Nature](#)
- CPSL [Externality Valuation Assessment Tool \(E.Valu.A.Te\)](#)
- EU Business and Biodiversity Platform [Natural Capital Accounting for Business: Guide to Selecting an Approach](#) and [NCA Decision-matrix Tool](#)
- [Biodiversity Accountability Framework](#)
- [KPMG True Value](#)
- PricewaterhouseCoopers (PwC) [Total Impact Measurement & Management \(TIMM\)](#)
- Earth Economics [Simple Effective Resource for Valuing Ecosystem Services \(SERVES\)](#)
- Sustain [estell](#)
- Trucost [Natural Capital Analyzer](#)
- Truprice [Consultation Draft Principles on methods for Impact Measurement and Valuation](#)
- WRI WBCSD [Guide to Corporate Ecosystem Valuation \(CEV\)](#) and [WBCSD Guide to Water Valuation](#)
- Earth Economics: [Ecosystem Valuation Toolkit \(EVT\)](#)
- [Ecosystem Service Valuation database \(ESVD\)](#),
- [Environmental Valuation Reference Inventory \(EVRI\)](#)
- [Alliance for Zero Extinction](#)
- [Wild Bird Index](#)

ANNEX 2: SDG 15 (Draft as of May 2015)

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

15.1 by 2020 ensure conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

15.2 by 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and increase afforestation and reforestation by x% globally

15.3 by 2020, combat desertification, and restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation neutral world

15.4 by 2030 ensure the conservation of mountain ecosystems, including their biodiversity, to enhance their capacity to provide benefits which are essential for sustainable development

15.5 take urgent and significant action to reduce degradation of natural habitat, halt the loss of biodiversity, and by 2020 protect and prevent the extinction of threatened species

15.6 ensure fair and equitable sharing of the benefits arising from the utilization of genetic resources, and promote appropriate access to genetic resources

15.7 take urgent action to end poaching and trafficking of protected species of flora and fauna, and address both demand and supply of illegal wildlife products

15.8 by 2020 introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems, and control or eradicate the priority species

15.9 by 2020, integrate ecosystems and biodiversity values into national and local planning, development processes and poverty reduction strategies, and accounts

15.a mobilize and significantly increase from all sources financial resources to conserve and sustainably use biodiversity and ecosystems

15.b mobilize significantly resources from all sources and at all levels to finance sustainable forest management, and provide adequate incentives to developing countries to advance sustainable forest management, including for conservation and reforestation

15.c enhance global support to efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities.

ANNEX 3: ECOSYSTEM SERVICES CATEGORIES IN THE CICES V4.3
 (January 2013) <http://cices.eu/>

Section	Division	Group	
Provisioning	Nutrition	Biomass	
		Water	
	Materials	Biomass, Fibre	
		Water	
	Energy	Biomass-based energy sources Mechanical energy	
	Regulation & Maintenance	Mediation of waste, toxics and other nuisances	Mediation by biota
Mediation by ecosystems			
Mediation of flows		Mass flows	
		Liquid flows	
		Gaseous / air flows	
Maintenance of physical, chemical, biological conditions		Lifecycle maintenance, habitat and gene pool protection	
		Pest and disease control	
		Soil formation and composition	
		Water conditions	
		Atmospheric composition and climate regulation	
Cultural		Physical and intellectual interactions with ecosystems and land-/seascapes [environmental settings]	Physical and experiential interactions
			Intellectual and representational interactions
		Spiritual, symbolic and other interactions with ecosystems and land-/seascapes [environmental settings]	Spiritual and/or emblematic
	Other cultural outputs		

ANNEX 4: ANALYSIS OF INDICATORS ACROSS KEY BES INITIATIVES

In support of Table 2 above, the following table outlines the categories of metrics in key BES initiatives across business and policy (national and international)

	ASSESS						MANAGE					REPORT	Finance	Governance
	Cause	Pressures on BES		State of BES (Impact)			BES Benefit	Management						
	Neutral habitat descriptor	Threats (e.g. pollution, fragmentation, invasive species, resource use)	Genetic diversity	Non-species related (i.e. habitats/biomes)	Species-related	Risk & Opportunity	Access and benefits sharing	Awareness	Action Plans knowledge Infrastructure	Sustainable use/preservation and remediation	Decommissioning		Investments Markets	Policies, National Accounts transparency, compliance
BUSINESS														
GRI														
LIFE														
BS8583 Biodiversity Management														
WRI/WBCSD ESR														
Holcim / IUCN Biodiversity Indicator & Reporting System														
GOVERNMENT - NATIONAL														
SEEA & CICES														
CBD & BIP (2010-2020)														
GOVERNMENT - INTERNATIONAL														
SDG 15 (draft)														

¹ Measure What Matters is an initiative led by the Green Economy Coalition and their partners: Accounting for Sustainability, the Global Reporting Initiative, the International Institute for Environment and Development and the Stockholm Environment Institute. Together, our mission is to bring greater alignment between corporate, national and global actors as to how to better measure progress, using the health of our planet and the wellbeing of our communities as our yardstick rather than profit alone. Together we are:

1. Identifying overlaps between different indicator sets as the corporate, national and global level
2. Convening a High Level Working Group from business and policy to understand how to bring alignment between so many different indicators sets
3. Lobbying policy processes to develop the SDGs, alternative GDP indicators and enhanced corporate reporting.

For more information: www.measurewhatmatters.info

² Definitions of ecosystem services are based on UN Millennium Ecosystem Assessment, 2005, *Ecosystems and Human Wellbeing: Synthesis*, Island Press, Washington, DC., www.maweb.org and Common International Classification of Ecosystem Services, 2012, <http://www.cices.eu/>

³ IIRC, Integrated Reporting Framework, 2013

⁴ UN, 2005, Millennium Ecosystem Assessment, *Ecosystems and Human Wellbeing: Synthesis*, Island Press, Washington, DC., www.maweb.org

⁵ WWF International, 2014, *Living Planet Report 2014* Species and Spaces, People and Places, Water Footprint Network with WWF, Zoological Society of London and Global Footprint Network, ISBN 978-2-940443-87-1 , http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/

⁶ WEF, 2015, *Global Risks*, <http://reports.weforum.org/global-risks-2015/>

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⁸ UNEP, 2012 *Dead planet, living planet: Biodiversity and ecosystem restoration for sustainable development*, http://www.unep.org/pdf/RRAecosystems_screen.pdf

⁹ Reuters, 08 March 2012, *Saving biodiversity: a \$300 billion-a-year challenge*, <http://www.timeslive.co.za/scitech/2012/03/08/saving-biodiversity-a-300-billion-a-year-challenge>

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¹³ UN SDGs, <https://sustainabledevelopment.un.org/sdgsproposal.html>

¹⁴ WAVES, <http://www.wavespartnership.org/en>

¹⁵ Common International Classification of Ecosystem Services (CICES), Version 4, August-December 2012, <http://cices.eu/>

¹⁶ DH Landers and Nahlik AM (2013) 'Final Ecosystem Goods and Services Classification System (FECS-CS)', EPA/600/R-13/ORD-004914, US Environmental Protection Agency, Office of Research and Development, Washington, D.C.

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¹⁸ BIP Linked Indicators project and policy brochure, <http://www.bipindicators.net/linkedindicators>

¹⁹ Tittenissor, D. et al, *2014 A mid-term analysis of progress toward international biodiversity targets*, Science 10 October 2014: Vol. 346 no. 6206 pp. 241-244, DOI: 10.1126/science.1257484

²⁰ BBOP, *Business Biodiversity Offset Standard*, <http://bbop.forest-trends.org/>

²¹ OECD (2010). *Paying for biodiversity: enhancing the cost-effectiveness of payments for ecosystem services*. OECD, Paris.

²² Smith, S., Rowcroft, P., Everard, M., Couldrick, L., Reed, M., Rogers, H., Quick, T., Eves, C. and White, C. (2013). *Payments for Ecosystem Services: A Best Practice Guide*. Defra, London.

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