

# Net impact accounting for renewable natural capital

## *Possible pathways for corporate level disclosure*

*Working paper<sup>1</sup>*

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### Key messages:

- Current corporate reporting and disclosure fail to explain what are the net impacts of organisations on renewal natural capital;
- Net impact accounting has been pioneered at the project level through the use of the impact mitigation hierarchy;
- Developing net impact accounting methods for corporate level reporting and disclosure should be a priority;
- We propose the development of statements of natural capital position and performance (NC Balance Sheet and Profit & Loss respectively) to account for the net impacts of organisations on the diversity of values attached to nature.

### Executive summary:

Both internal and external stakeholders of organisations are increasingly aware of the importance of natural capital in creating sustainable value. Corporate reporting and disclosure on renewable natural capital has been growing over the past decade. It typically follows guidelines developed by the Global Reporting Initiative and the Carbon Disclosure Project. Yet, quantified data disclosed is currently essentially limited to annual air emissions and water consumption, while impacts and dependencies on biodiversity and ecosystem services are addressed by disclosure of management approaches to identified material issues, without quantified performance data presented in a consistent, standardised manner. This prevents stakeholders from fully understanding how reporting organisations manage their net impacts and dependencies on renewable natural capital. This paper thus aims to timely respond to

the needs of developing methods that are robust and consistent for improving current natural capital reporting and disclosure. More specifically, the paper will:

- Briefly review business impacts and dependencies on natural capital, highlighting why net changes in natural capital matter;
- Review existing corporate reporting and disclosure approaches, highlighting the gaps towards net impacts disclosure (e.g. no accounting for natural capital stocks, no clear baseline year and thus accumulated impact accounting) ;
- Identify the key building blocks and opportunities that project-level net impact accounting offers, as well as gaps to be addressed, when attempting to consolidate net impacts at the corporate level;
- Present the accounting foundations for building consistent, standardised Statements of Natural Capital Position and Performance (i.e. Natural Capital Balance Sheet and Profit & Loss respectively) for corporate reporting and disclosure on net changes in natural capital, for different sets of accounts, values and organisational scopes.

## **1- Business and natural capital: why net changes matter**

### **1.1 Business impacts and dependencies on natural capital**

Natural capital refers to the stocks of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soils, minerals) and the associated flows of ecosystem services which benefit people and companies. For business specifically, natural capital can be perceived as a set of resources and benefit streams to reach organisational outcomes, such as critical production assets (e.g. raw materials, energy, genetic materials) and natural risk mitigation services (e.g. flood regulation

and crop disease regulation services) provided by well-functioning ecosystems. Depending on the context, changes in the availability or quality may generate different types of risks (e.g. changes in resource availability, degradation of ecological infrastructure supporting specific regulating services such as water quality and aquifer recharge) and changes in capital and operational costs (e.g. supply / procurement costs, investments in new technologies). Changes to natural capital are at the core of numerous stakeholder relations, at various steps in the value-chain, with important effects on corporate image and the social licence to operate.

At the same time, natural capital stocks and their capacity to supply ecosystem services can be impacted by business in two ways:

- Through their use or extraction for production processes (e.g. water abstraction for mining process, fishing or wood harvesting);
- Through the changes caused by business activities in receiving ecosystems (e.g. land use change, waste generation, water and air emissions).

## 1.2 Why net changes in renewable natural capital matter

Sustainably managing and conserving renewable natural capital requires several interrelated components, including their ability to sustain (renew) themselves (e.g. sufficient space and time to do so) and the implementation of cost-effective management systems (including in terms of rights of access and use). To support this, reliable and regular assessments of changes in stocks and flows (e.g. amounts of extracted resources), in both space and time, are required. In other words, to understand whether a business sustainably manage a specific renewable natural capital stock, it needs to be able to understand:

- The status (amount, condition, location) of the stock it interacts with;
- The changes in stocks due to its activities and, potentially, that of other economic agents (depending on the business context).

For this information to be meaningful for decision-making and management, the business needs to:

- Define a clear time and spatial baseline so as to be able to quantify and understand any change in natural capital stocks and associated ecosystem services supply from a relevant starting point;
- Assess the positive or negative changes in natural capital stocks and associated potential ecosystem services supply which different management activities generate over a given timeframe;
- Assess the net balance (positives minus negatives) of changes (impacts) resulting from such activities over the target timeframe.

In doing so, the company will be in a position to understand whether management activities are effective in sustainably managing or conserving renewal natural capital. This is the type of information that external stakeholders should expect from reporting organisations. But do reporting organisations disclose their net impacts on natural capital?

## **2- DO REPORTING ORGANISATIONS EFFECTIVELY TO DISCLOSE THEIR NET IMPACTS ON NATURAL CAPITAL?**

### 2.1 Sustainability reporting – a fragmented discipline

Various frameworks and standards<sup>3</sup> have been developed and implemented over the past 15 years to improve extra-financial accountability to both internal and external business stakeholders. For companies, this involves participating in a mix of public and private sustainability reporting practices, private reporting often aiming at providing supplementary information on selected issues (especially climate change and governance issues) to institutional investors.

Yet, many academics, practitioners and organisations have called for reporting on natural capital to be significantly improved (Bishop 2010; Bonner et al., 2012; Boulter, J., 2011). They argue that it falls far short of providing the detailed sustainability information needed by the institutional investment community for investment decision-making (Solomon et al., 2011; UNEP PRI / UNEP FI 2011). Indeed, a recent study by ACCA (the Association of Chartered Certified Accountants) and CDSB (the Climate Disclosure Standards Board) (Guthrie, 2016) argues that despite progress made in sustainability reporting and its growing importance, the fragmentation of the discipline is weakening its impact. In other words, sustainability reporting and disclosure practices have yet to generate the same level of influence as financial statements do.

## 2.2 Incomplete reporting on impacts on renewable natural capital impacts

There are four main ways for companies to report on natural capital impacts and dependencies to date (Houdet *et al.*, 2010; 2014):

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<sup>3</sup> E.g. Climate Disclosure Standards Board (CDSB) framework for reporting environmental information and natural capital, Global Reporting Initiative - GRI G4 guidelines, CDP disclosure programs – e.g. on climate change and water, Sustainability Accounting Standards Board (SASB) sectoral standards.

- Narratives about the company's management approach are used to explain how reporting organisations deal with a specific natural capital issue;
- Financial information may be disclosed to explain the financial implications or consequences of a specific environmental event (e.g. closure liability, oil spill fines);
- Quantitative non-monetary information are disclosed to express how the reporting organisations uses and / or impacts natural capital;
- Information on natural capital externalities, disclosed by a very limited number of companies to date (e.g. ABN AMRO, BSO / Origin, Novo Nordisk, PUMA / KERING), is used to present the uncompensated economic impacts on society generated by the reporting organisation (e.g. economic costs of company air emissions).

Mainstream corporate sustainability reporting and disclosure related to renewable natural capital is currently essentially limited to the first (management narratives) and third (quantitative non-monetary information) types of reporting. While management narratives and (mere) financial information are insufficient in themselves to give report users an understanding of natural capital uses and impacts. The first form does not include any data while the second focuses exclusively on the impacts of natural capital on the company bottom line. The latter form of reporting is currently limited to:

- Non-product outputs or emissions such as greenhouse gas (e.g. CDP GHG Protocol scopes 1, 2 and 3; GRI G4 - EN15, 16 & 17 indicators), hazardous waste (e.g. GRI G4 - EN25 indicator) and spills (e.g. GRI G4 - EN24 indicator).
- Amounts of material inputs such as material used (weight or volume) (e.g. GRI G4 - EN1 indicator) and water withdrawal by source (e.g. GRI G4 - EN8 indicator).

The disclosure of such key performance indicators directly refers to flows of resources, both inputs and outputs of the reporting organization. In other words, the

underlying changes in natural capital stocks (e.g. stocks of renewable resources, air or water quality) are not disclosed. They are not measured for reporting purposes. Moreover, such disclosures do not explicitly refer to a baseline year but are valid only for the reporting period, typically for a timeframe of a year preceding the disclosure (e.g. amount of materials used from April 1<sup>st</sup> until March 31 of the year). This leads to a series of annual disclosures with no information on net impacts or changes since a relevant baseline year (e.g. start of resource exploitation or emission generated).

### 2.3 Are sustainability or environmental Profit & Loss Statements the panacea?

Interestingly, recent disclosures on natural capital externalities have attempted to assess net impacts over a given period (i.e. one year / reporting period) by subtracting negative externalities from positive ones. These have been labelled as environmental, sustainability or integrated profit & loss accounts, depending on the thematic focus of the externalities assessed. For instance, Kering historically focused on environmental externalities (Kering 2014) while the work done by True Price (de Adelhart Toorop *et al.*, 2016) for a number of companies sometimes covered six different types of capitals (financial, manufactured, intellectual, natural, human, social; e.g. work done for ABM AMRO in 2014).

Yet, such attempts fall short of providing a clear understanding on corporate impacts on natural capital for the same main reasons:

- Economic valuation models used to assess externalities also rely on non-monetary flows of resources, both inputs (e.g. land use / amount of hectares converted) and outputs (e.g. air or water emissions) of the reporting organization, as the underlying data for valuation. These implicitly exclude any underlying change in natural capital stocks (e.g. stocks of renewable resources, air or water quality).

- These disclosures also do not show net changes or impacts beyond a single reporting period (typically a year), and thus constitute profit & loss accounts without the corresponding assets and liabilities accounts one would find in financial statements (to which they implicitly refer to for, assumingly, greater recognition or credibility).

In other words, these emerging disclosure models still fail to address the main issue facing reporting organisations. They do not allow reporting organizations to disclose information which put users in a position to understand whether management activities are effective in sustainably managing or conserving renewal natural capital. In other words, how could stakeholders have access to information about the net impacts of the reporting organisation on Natural Capital?

### **3- ACCOUNTING AND REPORTING ON NET IMPACTS ON NATURAL CAPITAL**

This final section of this paper aims to achieve two main things. First, we present briefly the impact mitigation hierarchy which enables companies to monitor and demonstrate net impacts of specific projects over time, typically in the context of environmental permitting.

Secondly, we expand this model so as to propose the accounting foundations for building consistent, standardised Natural Capital Statements of Position and Performance (i.e. Natural Capital Balance Sheet and Profit & Loss respectively) for corporate reporting and disclosure on net changes in natural capital.

Finally, we briefly discuss the different ways of expressing the values of natural capital stocks and flows and propose a practical approach forward.

### 3.1 Starting point: the impact mitigation hierarchy

The mitigation hierarchy refers to the sequence of actions taken to anticipate and avoid impacts on biodiversity and ecosystem services; and where avoidance is not possible, minimize or reduce impacts; and, when impacts have occurred, rehabilitate or restore; and where significant residual impacts remain, compensate or offset them. More specifically:

- Avoidance measures are measures taken to avoid generating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to avoid impacts on natural capital as much as possible (e.g. locating a project outside a key biodiversity area).
- Minimization measures are taken to reduce the duration, intensity and /or extent of impacts that cannot be completely avoided, as far as is practically feasible (e.g. managing material and waste flows, scheduling of vegetation clearing, or pollution risks).
- Restoration measures are measures taken to assist the recovery of an ecosystem that has been degraded, damaged, or destroyed by project activities (e.g. rehabilitation of a mining site or quarry).
- Offset measures compensate for any residual significant, adverse impacts on natural capital that cannot be avoided, minimised and / or rehabilitated or restored, often implemented in order to achieve no net loss or a net gain of natural capital (BBOP 2012). This may be achieved outside the immediate project area, through active natural capital restoration or creation projects, or through averted risk / loss offsets, which aim to prevent likely future risks of harm to (or losses of) natural capital from occurring (Bull *et al.* 2013). The latter option requires the definition of an appropriate counterfactual (what would have happened without the offset?). Examples of averted-

loss offsets include the expansion of a protected area network in areas under pressure from third parties.

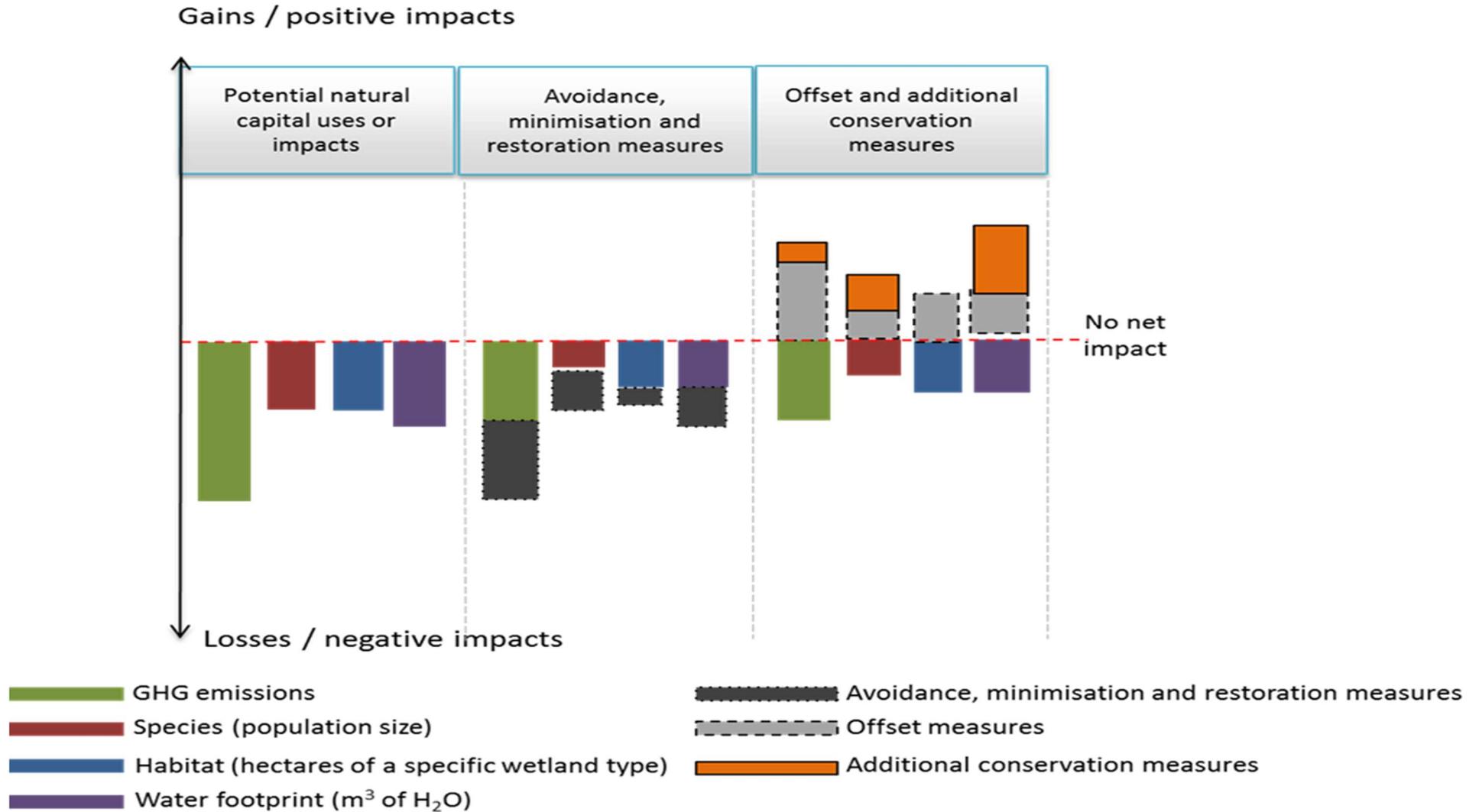
The use of the impact mitigation hierarchy is often linked to the concept of no-net-loss or a net gain for a whole project (Figure 1), which requires an assessment of the baseline or existing conditions to provide a starting point (e.g. pre-project condition of natural capital) against which comparisons can be made (e.g. post-impact condition of natural capital), allowing changes in natural capital to be measured throughout the asset life-cycle. This is exactly what is currently missing from corporate reporting and disclosure.

This approach has been applied to growing number of projects worldwide (e.g. property development, linear infrastructures, mines; see Aima *et al.*, 2015; Ekstrom *et al.*, 2015; UNEP – WCMC, 2016), typically in the context of project authorisation processes. Besides, as illustrated by Table 1, the impact mitigation hierarchy has been applied to both flows (e.g. a business non-product output such as greenhouse gas emissions or wetland hydrological functions that regulate up- and down-stream water flows) and various stocks of biodiversity (various habitat types and species, including commercial fish or timber stocks). This means the concept is very flexible to measure net changes in both natural capital stocks and flows.

	Examples of impact mitigation hierarchy measures				KPI
	Avoidance	Minimisation	Restoration	Offset	
<b>Greenhouse gas</b>	Yes - e.g. alternative renewable energies	Yes - e.g. energy efficiency measures	Limited to natural regeneration of carbon stocks	Yes - various mandatory & voluntary GHG offset schemes	GHG T eq.
<b>Biodiversity (habitats, populations of species)</b>	Yes - e.g. avoiding wetlands when planning	Yes - e.g. minimising footprint of construction operations	Yes - e.g. alien species eradication, wetland rehabilitation	Yes - various mandatory & voluntary schemes in the world (species, habitats)	e.g. Presence of species, population of species, habitat size & condition, etc.

**Table 1:** The impact mitigation hierarchy applied to stocks (biodiversity) and flows (greenhouse gas emissions)

**Figure 1:** Applying the impact mitigation hierarchy towards no-net-loss of natural capital stocks (species, habitat) and flows (greenhouse gas emissions, litres of water consumed as part of water footprint) for a project (Adapted from ACCA 2014 & Houdet *et al.*, 2014)



### 3.2 Natural capital statements of position (balance sheet) and performance (profit & loss)

If a company wants to report on its net impacts on renewable natural capital it uses or impacts on, we propose to use the impact mitigation hierarchy as the **primary analytical framework** to account for *net changes* in natural capital stocks and flows. **No net natural capital impact** thus refers to the point where natural capital gains from targeted activities (e.g. impact mitigation, restoration / restoration and offset measures) match the natural capital losses generated by the company's impacts on the targeted natural capital stocks and flows. **Net positive natural capital impact** refers to the point where natural capital gains from targeted activities exceed natural capital losses generated by the company's dependencies or impacts on natural capital.

Furthermore, the first key principle to use in this context is the **equivalency principle**: The company cannot use a single metric to account for losses or gains of any type of natural capital dependency or impact (Box 1). Specific metrics are appropriate for each type of natural capital stock or flow. In other words, to assess the net impact of a business on natural capital, it is important to ensure that natural capital losses and gains are matched or equivalent for each natural capital type, amount and condition (or quality). For instance, habitat gains through restoration or offset measures cannot offset carbon emissions while carbon offsets cannot be used to assess the net impacts of a project on a specific species of plant. In other words, segregated accounts of each type of natural capital stock and flow need to be assessed and monitored in their own right.

It follows that net impacts or changes should be assessed separately for different types of natural capital:

- **Stocks:** e.g. water (quantity, quality), soil (quantity, condition / health), species (populations), habitats / ecosystems, fish stocks, wood stocks, etc., which should be a priority for corporate disclosure on natural capital; and
- **Flows:** e.g. inputs (uses of natural capital such as amount / quality of materials, water, etc.) and non-product outputs (waste, emissions) which, as previously discussed in section 2.2, are the primary focus of most current corporate reporting standards, guidelines and practice<sup>4</sup>.

**Box 1: Examples of equivalent losses and gains of natural capital stocks and flows**

**Natural capital stocks:**

- Net wetland impact over 10 years equals to the total amount of wetland losses (of a specific type) minus the total amount of wetland gains (e.g. through wetland creation or averted loss of comparable wetland types) over the period;
- Net impact on a species over 5 years equals to the total amount of population losses (e.g. through disturbances or habitat clearance) minus the total amount of population gains (e.g. through habitat creation, reintroductions or averted loss of populations of the same species) over the period.

**Natural capital flows:**

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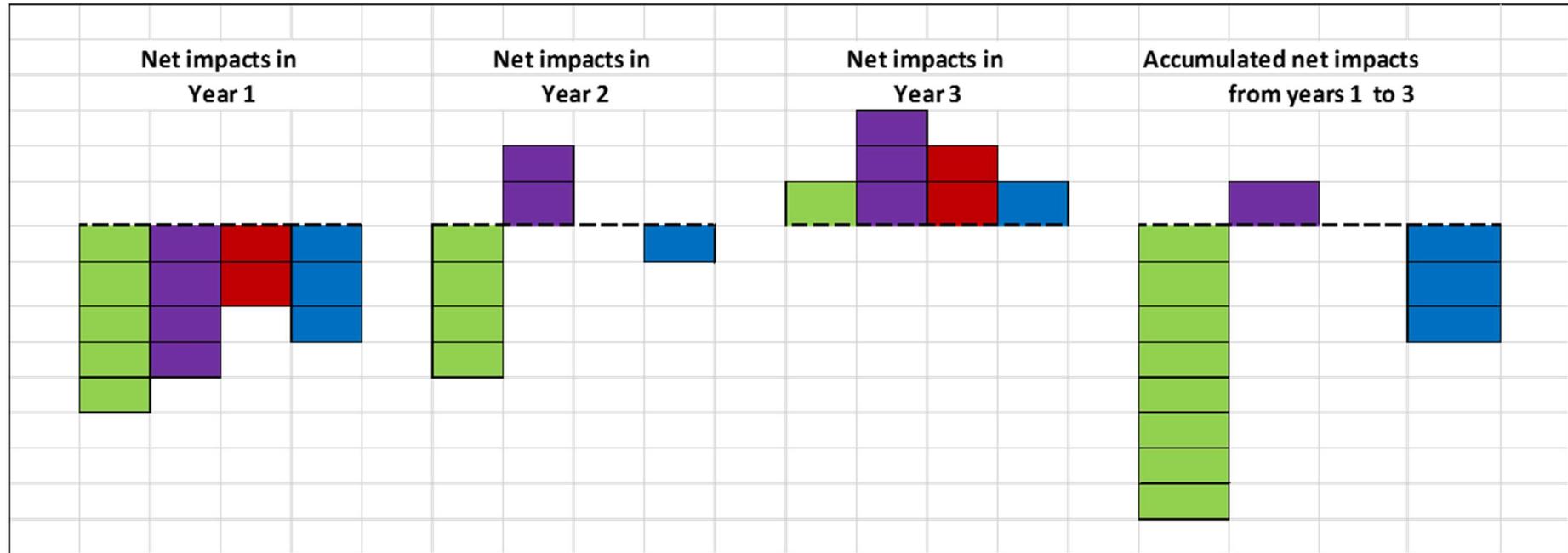
<sup>4</sup> If stocks cannot be directly measured, measuring such flows can be pursued as an initial step (e.g. GHG emissions as a driver of ecosystem change).

- Net GHG emissions over 5 years equals to the total amount of GHG emitted minus the total amount of GHG sequestered over the period;
- Net wood consumption over 15 years equal to the total amount of wood extracted minus the total amount of wood grown over the period.

Furthermore, since the Net Natural Capital Impact of a business refers to the residual impacts (on stocks or in terms of flows) after taking into account natural capital losses and gains over a specific timeframe, we differentiate:

- The **Natural Capital Statement of Performance** (or **Natural Capital Profit & Loss Statement**) (Figure 2): In reference to the Statement of Financial Performance (Profit & Loss Account), it represents the **net changes, gains minus losses, in a natural capital stock or flow over one year**.
- The **Natural Capital Statement of Position** (or **Natural Capital Balance Sheet**) (Figure 2): In reference to the Statement of Financial Position (Balance Sheet), it represents the **accumulated net changes, gains minus losses, in a natural capital stock or flow at a specific time** (e.g. from the time of the first natural capital assessment or the start of the business activity up to the present time).

**Figure 2:** Theoretical example of a Natural Capital Statement of Performance (3 distinct years) and Position (accumulated), for several natural capital flows (GHG emissions, water footprint) and stocks (species, wetlands). *Key: The black dotted line represents no net impact. Colour boxes above the black dotted line depict positive impacts (gains) while those below the line are negative impacts (losses).* Adapted from ACCA (2014) and Houdet et al. (2014).



	GHG Emissions (T eq. CO <sub>2</sub> )
	Wetlands (hectares of specific type)
	Water footprint (m <sup>3</sup> of H <sub>2</sub> O)
	Species (population size)

### 3.3 Concluding remarks: What values should be disclosed?

While Natural Capital Statements of Position and Performance should be expressed in the diverse set of values of nature, reflecting all stakeholders' value perspectives, as per the recommendations of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) for a pluralistic approach in knowledge-policy interface initiatives to the value of the natural world and its contribution to human societies (Diaz *et al.*, 2015), we argue that they should first be disclosed using non-monetary disaggregated values first (as opposed to what has been proposed by Eftec, 2015). Why? Because not all dimensions of natural capital can be rigorously expressed in monetary terms. For instance, some species may have no or little economic value but they can be protected by law and / or be recognized as natural assets of national or international importance. The conservation or sustainable management of such natural capital stocks do fall within the scope of reporting organizations' accountability to all stakeholders.

This approach would resonate well with most current sustainability reporting initiatives (e.g. GRI, CDP). But it is not sufficient. We further argue that reporting organisations should also strive to disclose Natural Capital Statements of Position and Performance in:

- Financial terms, making use of existing financial accounting and reporting standards and lining natural capital stocks and flows with financial transitions (e.g. environmental expenses and liabilities, asset values of stocks, sales of renewable natural capital flows, etc.);

- Economic terms, making of economic valuation models so as to express the associated externalities, i.e. uncompensated costs and benefits to society, as per the recent initiatives discussed in section 2.3.

To that end, one of the key questions that will likely arise is related to the lack of clear boundaries of responsibilities for reporting net changes in natural capital stocks and flows. Where does the responsibility of the reporting organisation start and stop? The Natural Capital Protocol (2016) proposes clear value-chain boundaries to that end, highlighting the need to focus on where material issues lie, thus not necessarily where organisational control or ownership exists.

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