



PRINCIPLES OF INTEGRATED CAPITALS ASSESSMENTS

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**CAPITALS
COALITION**

Acknowledgements

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Summary

To address the three interconnected global crises of climate change, nature loss, and rising inequality, we need to embrace a more integrated, systems-based approach to decision-making. In order to do this, our decisions need to be informed by all the capital resources we utilize.

Whilst the Natural Capital Protocol and the Social and Human Capital Protocol (the 'Protocols') harmonized different approaches to identify, measure and value impacts and dependencies on nature and people respectively, they do not explicitly consider how to integrate these.

With the uniting of the Natural Capital Coalition and the Social and Human Capital Coalition in January 2020 to form the Capitals Coalition, businesses, financial institutions and governments that had previously conducted single capital assessments are considering how they can apply multi or integrated capitals assessments. This is throwing up new challenges around integration such as, where to start, what to prioritise, and how to present results.

In order to address this, leaders in applying capitals approaches came together as part of a collaborative project to harmonize the most common approaches. This has led to the development of a new baseline of best practice through the definition of five new overarching principles for integrated capitals assessments (Box 1). We encourage everyone reading this document to apply the principles and to share their experience and learning so that together we can continue to improve our understanding and application of integrated capitals assessments to inform decision-making.

Box 1 - Principles for undertaking integrated capitals assessments

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|-------------|---|
| Principle 1 | Consider all forms of capital and include all relevant capitals |
| Principle 2 | Take into account the surrounding system and its inter-connections |
| Principle 3 | Apply an appropriate level of attribution based on your degree of influence |
| Principle 4 | Present values at an appropriately granular level for the decision being made |
| Principle 5 | Specify and address key differences in impacts and dependencies amongst all stakeholders |

1 Introduction

1.1 Purpose of document

This document aims to provide guidance and consistency in how to assess more than one capital through applying 'integrated thinking'. Ultimately the objective is to move towards a standardized approach for integrated capitals assessments.

The intended audience is anyone interested in participating in good decision-making processes, in particular those in business, but also in finance or policy. Although the document is focused on principles for internal decision-making, they also apply to reporting and disclosure.

1.2 Key definitions

In order to undertake an integrated capitals assessment, it is important to understand key related concepts and definitions. The Capitals Coalition recognises four main categories of 'capital', each of which is defined in the references, with further details available on the Capitals Coalition website.

Box 2 provides key definitions that are important to understand, with other terms defined in the glossary.



Natural capital

The stock of renewable and non-renewable natural resources that combine to yield a flow of benefits to people.



Social capital

The networks together with shared norms, values and understanding that facilitate cooperation within and among groups.



Human capital

The knowledge, skills, competencies and attributes embodied in individuals that contribute to improved performance and wellbeing.



Produced capital

The human-made goods and financial assets that are used to produce goods and services consumed by society.

Figure 1

The four main categories of capitals.

Note that this is not an exhaustive list of all possible forms of capital but is a common conceptualization and that upon which the Capitals Coalition bases its work.

Box 2 - Definitions of useful key terms

A **capitals approach** is when the value of the impacts and dependencies on capital stocks (e.g. natural, human, social and produced capital) are taken into account to inform decision-making. (Capitals Coalition, 2020).

Integrated thinking in this context is a multi-capital management approach that enables organizations to deliver their purpose to the benefit of their key stakeholders over time. It is about creating and preserving value and enabling better decision-making based on inter-connected, multi-capital information (IIRC website, 2020).

A **systems-based approach** is an approach that analyses the inter-relations between human and non-human components across temporal and spatial scales. It involves identifying the drivers of change as determined and impacted by feedback loops, delays and non-linear relationships, and focussing on long-term value (adapted from TEEB, 2018).

Systems thinking is an holistic approach to analysis that adopts a systems-based approach.

Single capital assessments involve measuring and valuing impacts and dependencies on a single form of capital.

Multi-capital assessments involve measuring and valuing multiple capitals, in terms of a business' impacts and dependencies on them, showing the results for each capital 'side by side' (i.e. in a series).

Integrated capitals assessments involve measuring and valuing all relevant capitals in terms of impacts and dependencies on them, which explicitly takes into account systems thinking including the inter-connections both within and between all of the capitals.

1.3 How the principles have been developed

The Natural Capital Protocol and the Social and Human Capital Protocol provide guidance on how to undertake a single capital assessment. These new principles are intended to complement the existing Protocols, to help users undertake good integrated capitals assessments.

The development of the principles has been informed by a high-level review of principles and guidance in various relevant documents (see References), the authors' experience in undertaking capitals assessments, consultation with a selection of key experts and the Capitals Coalition Advisory Panel; and now through this wider stakeholder consultation process.

1.4 Why we need integrated capitals assessments

Although the current global economic system has brought considerable advances in health, education and prosperity for many, it is failing humankind by resulting in the climate, nature and inequality crises we now face. Various root causes are at play, but three in particular stand out. First, the failure of the market system to take into account many environmental and social values (known as 'externalities'). Second, the focus on rewarding shareholders over stakeholders (i.e. 'shareholder primacy'). And third, the 'silo mentality' that is pervasive throughout government and business decision-making worldwide.

An integrated capitals assessment approach helps overcome all three of these problems by enabling better decision-making. By its very definition, a capitals-based approach takes into account the value of the so-called externalities. When all capitals are considered, all environmental, social and economic externalities become visible. Secondly, taking into account all capitals also makes it possible to shift towards the much needed 'stakeholder primacy' and 'stakeholder capitalism'. Finally, by taking an integrated approach to assessing all the capitals, holistic systems-based thinking is applied rather than silo mentality.

As our scientific understanding develops, it is becoming increasingly apparent however everything on the planet is inter-connected, with systems contained within wider systems. Ultimately, all the capitals are inter-connected. Any impact or dependency on one capital will cause changes in the other capitals. For example, deforestation by a business can reduce the quantity of natural capital, which can affect the human and social capital of communities that rely on the forest for their livelihood. Thus, integrated capitals assessments make visible the entire system in which a business operates, allowing for improved decisions that factor in how changes in one capital will affect others.

1.5 Time for action

This document takes an important step in terms of emphasis of application. Whereas the Protocols were purposely written to set out options by using the term 'could' within the context of instructions, this document uses 'should' to aid better decision-making. By identifying what 'should' be undertaken during an assessment, we acknowledge the maturation of capitals approaches and the need to accelerate the transition towards a new normal in decision-making.

Better information from integrated capitals assessments will inform business decisions. However, these are more challenging to undertake, so it is acknowledged that some businesses may wish to start with a single capital assessment before progressing to multi-capital assessments before finally undertaking integrated capitals assessments. It is better to start out simply and slowly on this journey rather than not to start at all. 'Perfect' should not become the enemy of 'good'.

2 The spectrum of capitals assessments

2.1 Introduction

Assessments evaluating more than one capital should be differentiated depending on the level of ‘integrated thinking’ applied. This Section explains the spectrum of capitals assessments, ranging from ‘single capital assessments’ to ‘multi-capital assessments’ through to ‘integrated capitals assessments’.

As shown in Figure 2, the location of an assessment along the spectrum depends on the number of capitals assessed and the degree of integration applied in the assessment. The degree of integration is based on two factors:

- i. The extent to which systems thinking is applied, and
- ii. The extent to which inter-connections between the capitals are considered.

To be considered a good integrated capitals assessment, all capitals should be assessed, and the assessment should take into account the inter-connections between capitals. Note however, that single and multi-capital assessments can also involve some degree of integration and systems thinking. Each type of assessment is further defined below, accompanied by a hypothetical example outlining the possible results of such assessments.

It is important to note that integrated capitals assessments are **not** simply including social and environmental impacts or capitals within financial accounts (that is effectively a multi-capital assessment).

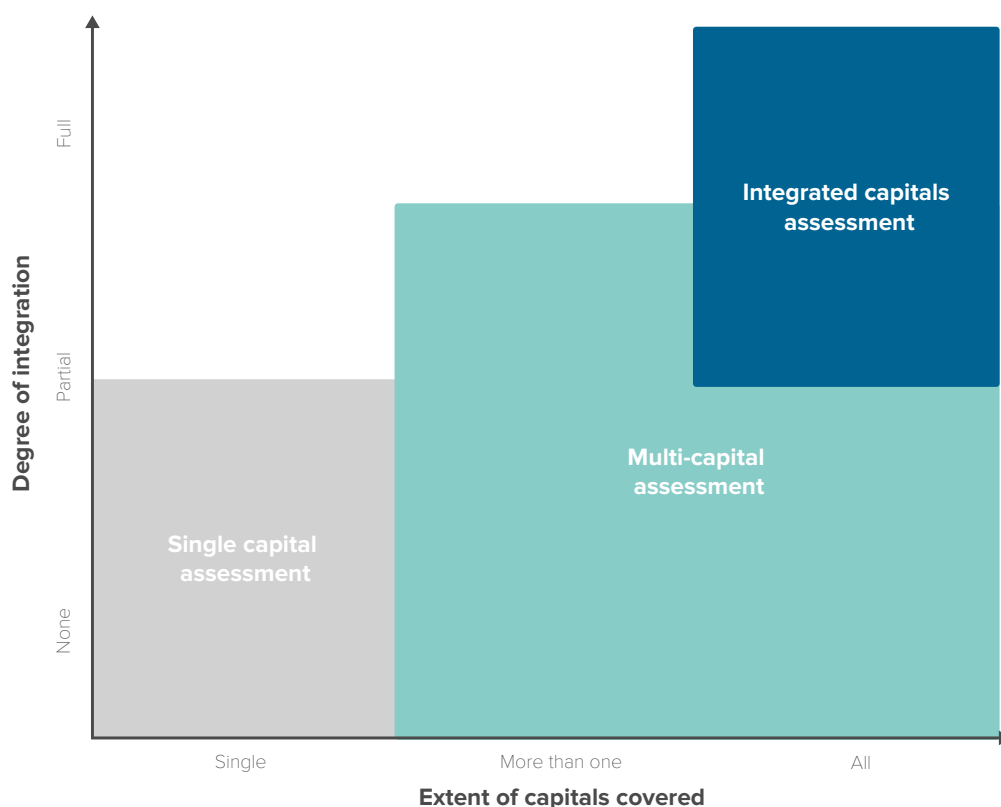


Figure 2
The capitals assessment spectrum.

Example application

This is an example to help explain the spectrum of capital assessments showing how each may deal with a particular issue.

A business needs to determine how best to address a coastal flooding problem for a manufacturing site in the tropics. A root cause of the problem is that mangroves are being cut down unsustainably for commercial charcoal production, leading to degradation of the mangroves and increased flooding risk. Table 1 provides a summary of the different options considered.

Conventional decision-making considers just produced capitals (as summarised in Option 1 of Table 1). As a result, the business would have likely decided to finance the building of a concrete coastal defence structure in front of its site as the solution. This may have also included cutting down the degraded mangroves.

Table 1
Summary of options considered in the hypothetical example.

	Option 1	Option 2	Option 3	Option 4
Type of assessment	Conventional assessment	Single capital assessment	Multi-capital assessment	Integrated capitals assessment
Capitals considered	Produced only (financial & manufactured)	Natural (with elements of Produced)	Natural, Social, Human & Produced	Natural, Social, Human & Produced
Systems thinking	No			Yes
Solution	Hard coastal defence.	Mangrove restoration by experts	Mangrove restoration with NGO and locals	Mangrove restoration with other businesses, NGO, locals and government
Level of collaboration	None	Low	Medium	High
Benefits identified	Value of infrastructure protected	Value of infrastructure protected, fisheries & recreation	Value of infrastructure protected, fisheries & recreation, wages, health, networks & trust	
Stakeholders considered	The business	The business, adjacent stakeholders	The business, adjacent stakeholders, community, NGO	Many businesses, adjacent stakeholders, wider community, NGO, government

2.2 Single capital assessments

Single capital assessments measure and value impacts and dependencies on a single form of capital

A single capital assessment focuses on a single capital such as natural or human capital, but often factors in some form of produced capital such as finance that is already commonly considered in business decision-making. The assessment may consider the inter-connections within the capital being assessed. So, for example, natural capital assessments may consider inter-connections between different habitats, and human capital assessments may consider inter-connections between training and skills. However, they do not generally take into account inter-connections between the capitals, except perhaps in some cases for financial capital where the direct link is obvious, such as the financial cost of training.

Example application: single capital assessment

A single capital assessment (in this case natural capital) reveals that a nature-based solution using mangrove restoration (Option 2) is a better option than building a hard-coastal defence structure (Option 1). This highlights that restoring the degraded mangroves provides sufficient coastal protection for the site as well as co-benefits of sequestering carbon and generating additional recreational and fishery benefits (due to the fish nursery function of the mangroves). In addition, it identifies that a concrete scheme would simply exacerbate the erosion damages for others further along the coast. When the societal value of these natural capital costs and benefits are included for the concrete versus the mangrove option, the latter nature-based solution becomes the preferred option.

The business hires a habitat restoration company that sends two expert planters together with some mangrove saplings from a specialist nursery located in the capital city.

2.3 Multi-capital assessments

Multi-capital assessments measure and value more than one capital, and ideally all relevant capitals, in terms of impacts and dependencies on them, showing the results for each capital ‘side by side’ (i.e. in a series).

A multi-capital assessment involves assessing more than one relevant capital and presenting the results for each capital together, side by side. Inter-connections between the capitals are not considered. However, multi-capital assessments do help to reveal the different impacts between the capitals. This can significantly help improve decision-making compared to single capital assessments and is particularly useful when comparing alternative options. If only a subset of capitals is prioritized and assessed, for example due to a lack of time or resources, it cannot be considered a multi-capital assessment, but should be referred to by the types of capital covered, for example, a ‘natural and human capital assessment’. Alternatively, if all capitals are assessed but one or more capitals are then excluded from the analysis and results because they are judged to be immaterial, the assessment is still a multi-capital assessment.

Example application: multi-capital assessment

A multi capital assessment may consider all four categories of capital (Option 3). This means that in addition to the natural and produced capital, the costs and benefits associated with local jobs (human/social); training provided (human/social), health and safety of workers (human) and local people (social), social networks (social), trust and goodwill (social), and any research and development/innovations (produced) are also evaluated and presented.

The business may still decide to restore the mangroves but now they decide it is better to work with a local NGO to train and employ several local villagers to collect and plant mangrove seedlings rather than hiring a restoration company based in the capital city.

2.4 Integrated capitals assessments

Integrated capitals assessments measure and value all relevant capitals in terms of impacts and dependencies on them, through applying systems thinking and assessing inter-connections between the capitals.

The key difference between multi-capital and integrated capitals assessments is the latter apply a systems-based approach that takes into account the interactions between the capitals. So as one capital changes, one or more of the other capitals is likely to change accordingly.

Example application: integrated capitals assessment

An integrated capitals assessment considers the wider system and landscape in which it operates (Option 4). This leads the business to consider:

- What broader system within which the problem (coastal flooding) and potential solutions (e.g. mangrove planting) exist? For example, does coastal flooding occur elsewhere in the region and which stakeholders are impacted by, or have responsibilities for, coastal flooding and any potential solutions within the region, and in what way?
- How do the capitals inter-connect? For example, are there any positive synergies and feedback loops that can be leveraged to ensure a better overall outcome for both the business and other stakeholders? And will planting mangroves increase fishery yields, thereby supporting jobs and wages for fishers, who may then be more willing to help support protection of the mangroves from mangrove cutting?

The business identifies several other businesses and hotels, as well as public infrastructure (e.g. roads, railway lines, power transmission lines and sewage pipelines) and villages facing similar problems along the coast. They also engage with government departments that are responsible for coast and flood protection, mangrove conservation, fisheries and economic development through enhancing local livelihoods. Through this interaction, they discover there are various government policies and funds available to support managing these issues. They also come to understand the significant additional benefits from increased livelihoods and local wages, enhanced fish catches, blue carbon credits for mangroves carbon sequestration, new and extended social networks, and enhanced trust between all the stakeholders. This provides a much better overall financial and societal value return, not only for the business itself, but for all other stakeholders.

The proposed scheme is a joint initiative between the business, three government departments, numerous other businesses with buildings and infrastructure at risk from coastal flooding, the NGO and several of the affected villages. Each of the businesses contribute either funds or in-kind resources, as do the government departments, NGO and villages. This enables a much larger scale mangrove restoration project to go ahead, benefiting from economies of scale for developing a mangrove nursery, training of locals to more effectively plant mangrove saplings, and education of villagers about the wider ecosystem service benefits of mangroves. Additional funds are also made available from the government for coast protection, mangrove conservation and fisheries, as well as carbon credit finance. Those people who once cut the mangroves are also now employed within the overall scheme.

2.5 Undertaking integrated capitals assessments

It should be noted that an integrated approach is a greater undertaking and will by its very nature involve understanding the impacts and dependencies on a wider group of stakeholders. This may necessitate collaboration with other groups, for example, local, representatives, other companies, governments, NGOs and academics, as well as the gathering of additional data.

Integrated capitals assessments are thus more complex than multi- and single capital assessments, especially for those with complex operations and value chains. Because undertaking integrated capitals assessments is reasonably new, few good examples of such assessments currently exist.

2.6 Getting started

To get started on undertaking an integrated capitals assessment, you should consider:

- Visiting www.capitalscoalition.org to find examples of good practice.
- Linking with and learning from people that have experience in undertaking capitals assessments and systems based thinking.
- Collaborating with and engaging with stakeholders to help inform your assessment.
- Starting with a relatively simple scope and decision to inform.
- Trialling your own integrated capitals assessment and sharing your outputs with others through the Capitals Coalition to obtain constructive feedback.

3 Principles of integrated capitals assessments

3.1 Introduction

As businesses, financial institutions and governments transition to undertaking integrated capitals assessments it is essential to be able to follow a framework that ensures good quality assessments are completed. It is important to recognise that these five new principles complement the four existing principles and guidance for undertaking capital assessments as set out in the Protocols.

3.2 The Protocols principles

The Protocols already set out four principles (Box 3) that are highly pertinent to undertaking any form of capitals assessment including multi- and integrated capitals assessments.

Box 3 - The principles of the Protocols

- **Relevance.** Ensure that you consider the most relevant issues throughout your natural capital assessment including the impacts and/or dependencies that are most material for the business and its stakeholders.
- **Rigor.** Use technically robust (from a scientific and economic perspective) information, data, and methods that are also fit for purpose.
- **Replicability.** Ensure that all assumptions, data, caveats, and methods used are transparent, traceable, fully documented, and repeatable. This allows for eventual verification or audit, as required.
- **Consistency.** Ensure the data and methods used for an assessment are compatible with each other and with the scope of analysis, which depends on the overall objective and expected application.

3.3 The principles of integrated capitals assessments

The principles described here should be used when undertaking an integrated capitals assessment. Users should note the deliberate strengthening of emphasis compared to the Protocols (i.e. “should” rather than “could”).

Principle 1 - Consider all forms of capital and include all relevant capitals

You should take into account all potentially relevant capitals, based on your organisation’s business model, and where any are deemed not relevant, you should state that they are not relevant, and why. This evaluation of relevance should be achieved through undertaking some form of materiality assessment that considers the significance of an issue to your organisation and its stakeholders. This should ideally be informed through appropriate use of science and evidence-based decision-making, as well as internal and external stakeholder consultation. The latter is particularly important to help identify the many complex connections, impacts and values that should potentially be taken into account.

There are many different types of capital and numerous ways of categorizing them. A common approach, as advocated by the Capitals Coalition, is to refer to four capitals, namely natural, human, social and produced capitals, as set out in Figure 3. This figure also indicates the relationship between the capitals, in that human and social capital are dependent upon natural capital, and produced capital is dependent on all three other capitals. The figure also includes reference to financial, manufactured and intellectual capitals which are all types of produced capital. How the capitals are categorized and described is up to the organization doing the assessment. For example, it is just as acceptable to follow the International Integrated Reporting Council’s (IIRC) categorization of six capitals. Inclusion of a greater number of capital categories can be confusing for some, whilst others may find it more useful. Other examples include cultural, spiritual and political capitals. Where relevant, blending an integrated capitals approach with existing cultural thinking, for example the Balinese ‘Tri Hita Karana’ philosophy of three ways to happiness and prosperity, can be particularly encouraged.

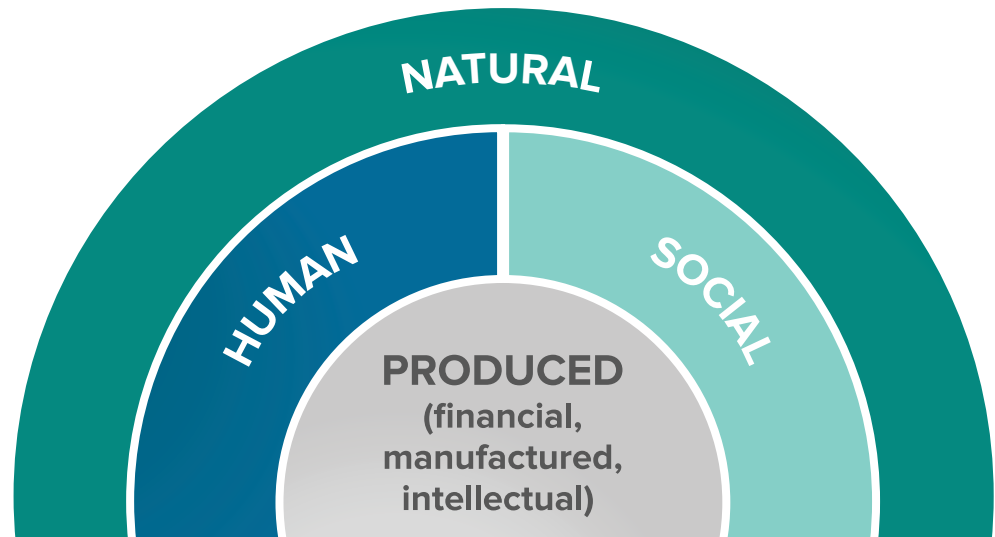


Figure 3
Relationship between the different capitals.

Principle 2 - Take into account the surrounding system and its interconnections

To be recognized as an integrated capitals assessment, adopting a systems-based approach is essential. The relevant system(s) should be considered, in particular the material inter-connections within, and between, the different capitals. This exercise should be initiated in the Frame and Scope Stages of a capitals assessment. Systems in this context include for example landscapes, river basin catchments, the broader working conditions within countries of operation, the networks and stakeholders that may be able to help devise or deliver a solution and the inter-connections between nature, people and organisations within these boundaries. Connections to other systems (e.g. other land and sea-scapes, other countries of operation and company commitments) through value chain interactions should also be considered.

All relevant activities and their relationship with all capitals should be included within the framing of the system. This should ideally include positive and negative feedback loops and how this will change over time. If assessing different options, some form of scenario analysis and the implications of the various potential options (e.g. solutions) should be undertaken.

Relatively simple approaches highlighting the inter-connections between capitals are a good start, for example, as shown in Figure 4.

Adopting a systems-based approach is likely to require relevant data on specific socio-economic factors such as current levels of skill development alongside other landscape/country or regional level data. While this data, and the context in which it resides, will be unique at every location, the Protocols' principle of consistency (see Box 3) supports the classification of this data to improve its inter-operability. Access to publicly available datasets at the appropriate level will thus be increasingly important for all companies, although these are often not sufficient for decision-making where localized data are required. The system boundaries¹ used in the assessments will need to be practical and relevant to the assessment, such as a site, product, company or portfolio.

For companies and portfolios, there may be multiple relevant systems and boundaries to consider. The relative effort needed will need to be balanced with the potential advantages.

Adopting a systems-based approach requires the consideration of both spatial and temporal inter-connections. Consequently, your assessment should ideally consider impacts and dependencies of both upstream activities (i.e. the supply chain including extraction and transportation) and downstream activities (e. g. customers, disposal and end of life). For decision-making around products and projects, this means including extraction, manufacturing/construction, distribution, operation and disposal/decommissioning phases.

Figure 5 provides an example of the connections between the four different capitals along the value chain for the eco-agri-food industry (TEEB, 2018). The figure shows both the visible and invisible links connecting all the different capitals, the different issues and the different stages of the value chain and working both ways.

It is likely that businesses will need to adopt a phased approach to adopting a fully integrated assessment and it may be more practicable for a company to, at least initially, focus on its own direct operations where it has most influence and control.

¹ While necessary from a practical perspective to define a manageable system boundary, in reality, elements within the system boundary naturally interact with elements outside of the boundary. One way to start defining a system boundary is to start with the business entity and extend the boundary to include all material receptors (humans, organizations and natural capital etc.) potentially connected through possible impacts and/or dependencies.

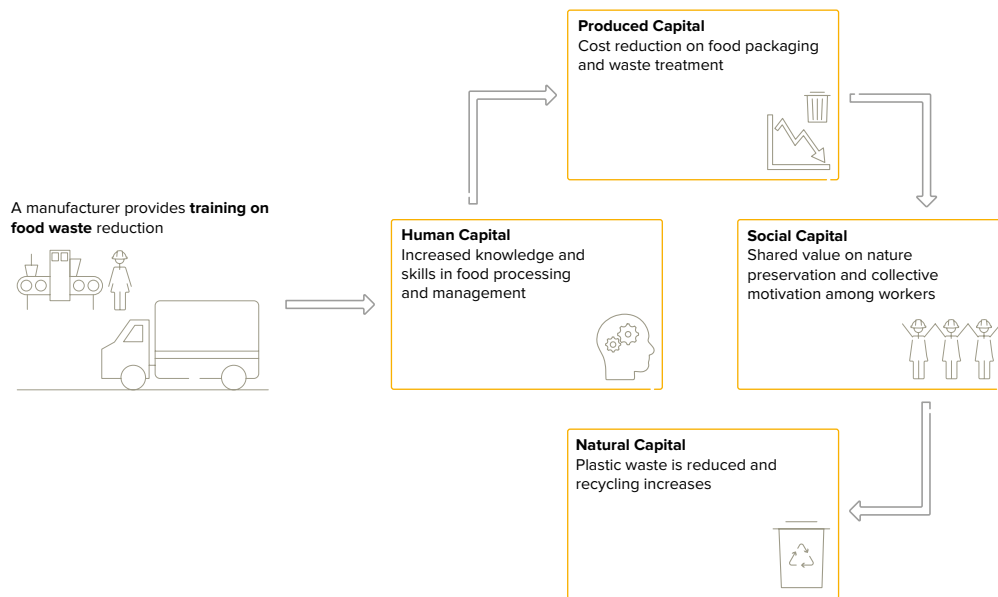


Figure 4
Example of inter-relationships between capitals based on training activities (Capitals Coalition, 2020).

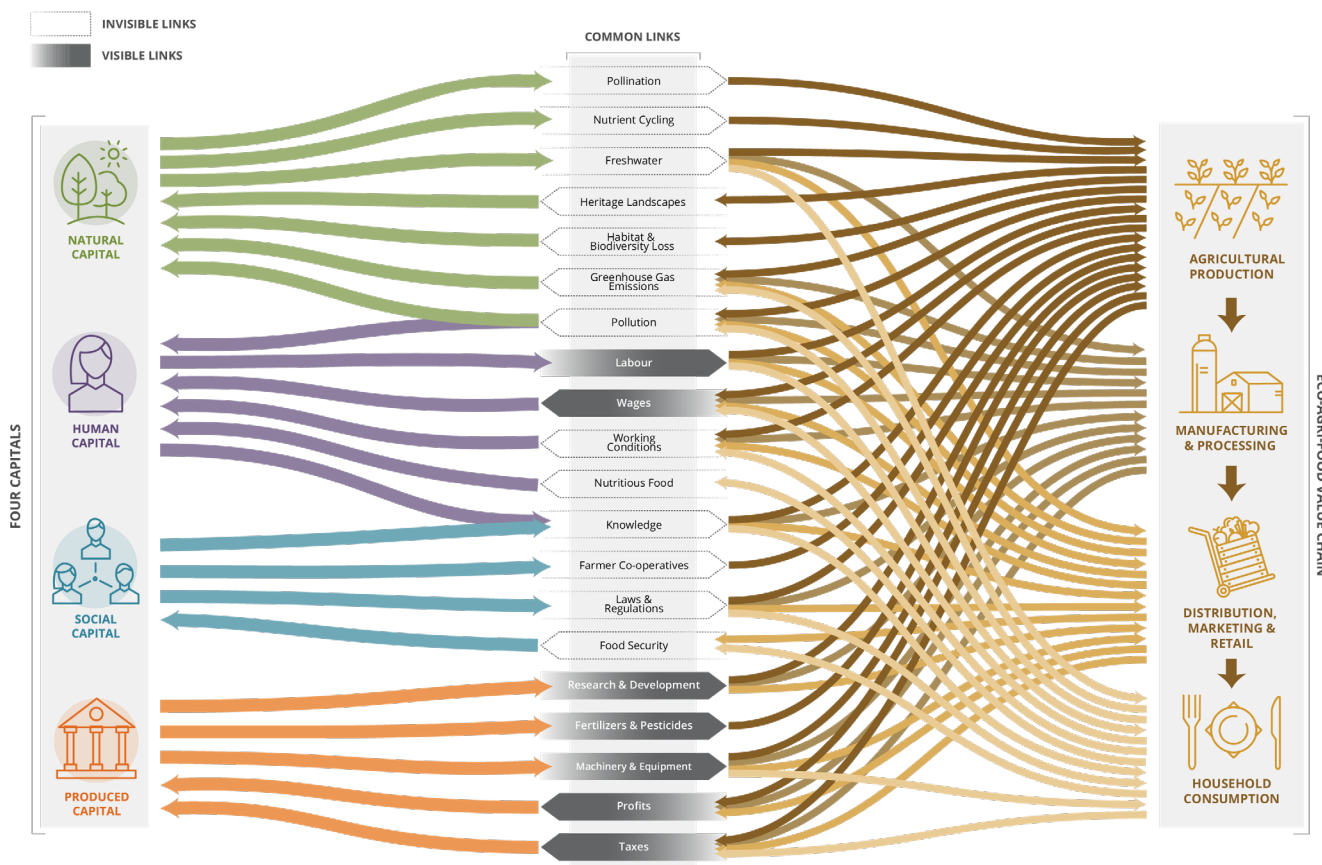


Figure 5
Links between capitals and value chain for the eco-agri-food value chain (TEEB, 2018).

Principle 3 - Apply an appropriate level of attribution based on your degree of influence

Identifying what you are fully or partially responsible for and the correct level of attribution is challenging but extremely important. There will be some impacts and dependencies that you are clearly responsible for and others where you may only have a limited degree of influence. Box 4 provides a hierarchy of the levels of attribution that you should use in a capitals assessment.

To understand the extent to which your organization has actually contributed to a particular impact you should consider what would have happened anyway in the absence of your activity (i.e. a counterfactual scenario). The impact you are responsible for is the difference between what happens as a result of your actions and what would have happened anyway. There are two aspects to this:

- Your organization's contribution to the depth and scale of an impact by factoring in **the estimated degree of change/impact that would have happened anyway**. Depth relates to the magnitude of change for a stakeholder, while scale relates to the number of stakeholders affected. Related to this, your assessment should, where relevant, also take into account the extent of displacement. For example, you should factor in whether you are simply taking market share from another business rather than providing additional value, or just moving a social issue from one area to another.
- Your organization's contribution to the duration of an impact by factoring in **how long it will last**.

Box 4 - Levels of attribution

You should use the following scale of attribution:

- 1. Direct:** The inclusion of aspects of business conducted by you, or that you own, or where you have a controlling majority stake.
- 2. Partial direct:** Where you have worked with partners resulting in impacts and/or dependencies.
- 3. Indirect:** Where you have commissioned activities by others or within your supply chain.
- 4. Enabling:** Activities that you have contributed to or which are carried out in your portfolio (e.g. financed) or by customers and other parts of the value chain.

Principle 4 - Present values at an appropriately granular level for the decision being made

The aim of this principle is to ensure that information provided through an assessment is presented at the right level of detail to be useful in decision making. This means showing positive and negative values both for each capital, and within each capital, at a suitably granular level.

A critical point is that negative values should not be masked by aggregating impacts in a way that only highlights an overall positive impact for each capital, whether for decision-making or presenting annual accounts. Furthermore, assessments should not only focus on values that can be monetized but should include the presentation of all potentially relevant impacts, dependencies and capital assets, including quantitative and qualitative information where necessary. Even when monetary values are included, it is important to still include the quantitative information (e.g. tons, or numbers of individuals affected) upon which the values are based, as these can help to inform decisions themselves and can sometimes be more reliable.

Issues relating to aggregation are especially important when considering natural capital and human rights impacts and must be taken into account in any assessment. For example, a larger societal value arising from aggregating company profits, salaries and taxes does not justify degradation of natural capital or any abuse of human rights. Such losses should always be made explicit to those making the decision. Similarly, an option to plant many trees may generate a positive natural capital value through significant carbon sequestration benefits, but any potential associated loss of biodiversity and water availability should be made fully clear. Likewise, the overall positive human capital value from staff wages and training should not be used to mask losses through occupational fatalities and accidents. You should always include acceptable thresholds and limits (see additional advice in the appendix) in every assessment.

Not all impacts and dependencies associated with the different capitals can be valued in monetary terms. This relates to issues such as human rights, inequality, biodiversity and spiritual values. Whatever the type of impact or dependency, if it is important and relevant to the decision being made, an appropriate form of information for each indicator being measured, in terms of the level and amount of information, should be presented. For some decisions, if relevant, you may find it useful linking the impacts and/or dependencies to the SDG goals or targets.

Furthermore, to ensure full transparency, whenever you present results you should always provide an explanation of the methods and assumptions made.

Principle 5 - Specify and address key differences in impact and dependencies amongst all stakeholders

When deciding alternative courses of action, there will inevitably be some form of trade-off between and within the different capitals. Sometimes the trade-offs will involve negative impacts (e.g. loss of biodiversity or a risk of more accidents). However, often the trade-offs can simply be one capital becoming greater (e.g. more 'quality' jobs) compared to another capital (e.g. less profit for the shareholders). The extent of relevant stakeholder groups becomes broader when more than one capital is part of an assessment, so a more comprehensive stakeholder mapping across all capitals is needed.

Negative and positive impacts and dependencies to the same stakeholder group do not necessarily even out. For example, occupational disease impacts affecting some employees negatively cannot be balanced out by providing training for other employees.

All significant biodiversity impacts and dependencies should also be specified and addressed. Biodiversity can be considered a stakeholder in its own right, as it has its own intrinsic right to existence, irrespective of any human defined value.

You should specify what the key differences in impacts and dependencies are in terms of the relevant decision being made and its affect amongst different stakeholders, as well as which stakeholders are negatively affected, and by how much. Where appropriate, consideration should be given to multiple levels of stakeholders within a stakeholder group (e.g. smallholders versus larger producers). In addition, you should also address any major imbalances, and in particular any negative impacts. As such, this principle very much complements and builds upon principle 4.

In cases where your decision results in a negative impact, you should apply the mitigation hierarchy, which can, to a varying degree, be applied in relation to all capitals. It stresses that the best option is to avoid the negative impact in the first instance, but where this is not possible, the impact should be reduced through some form of mitigation measure. As a last resort any residual negative impact remaining should then be offset to zero, fully compensated in some appropriate way, or potentially over-offset to result in a positive impact. For example, this would apply to both company actions potentially damaging an important habitat and those potentially resulting in employee injury or death.

Increasingly, companies are setting net zero and net positive impacts for environmental issues such as carbon, biodiversity, water and waste, but also for social issues such as zero accidents, deaths and human rights abuses. In order to address the climate, nature and inequality crises, companies will increasingly need to adopt such net impact approaches (e.g. net zero and net positive targets) and apply the full mitigation hierarchy.

In cases where negative impacts do not occur, it is still important to make clear which stakeholders do better and less well under each option, and by how much. This is discussed in more detail in the Protocols and is sometimes referred to as a 'distribution analysis'.

Stakeholder engagement should be undertaken at an appropriate level to help inform not only the identification of different impacts and dependencies but also how best to establish the most suitable form of mitigation and, if required, offset. This requires appropriate mechanisms for open dialogue and an ability to identify the unintended consequences (positive and negative) of different activities. Without speaking to people affected by an activity there is a high chance the wrong solutions will be identified.

It is of course important to remember, that a capitals assessment simply provides useful contextual information to help inform a decision. It does not make the decision itself.

3.4 What next?

Undertaking integrated capitals assessments is likely to be new to those who are applying this approach. It is though, essential if the organization is to take account of nature, people and the economy in all their decisions. These principles are intended to enable users to effectively manage the transition towards better and more balanced decision-making and in turn contribute to the creation of a fair, just and sustainable world.

This document has been developed with input from many specialists and builds on and recognizes a wealth of work that has gone before. It is recognised that this is also the first attempt to quantify what “good” looks like. We encourage everyone reading this document to apply the principles and then share their experience and learning so that together we can continue to improve our understanding and application of integrated capitals assessments to inform decision-making.

Appendix - Additional advice

This Appendix provides additional advice elicited through the expert consultation stage of developing these principles and includes re-iteration of some of the relevant 'Actions' specified in the Protocols.

Table A1
Additional advice.

Action	Recommendation
Stakeholder considerations	It becomes even more important to undertake stakeholder mapping and engagement to understand and include those stakeholders either impacting or being impacted by any changes to the different capitals, their legitimate needs, and how to respond to them. In particular, this can help you to understand what the inter-connections between the capitals are and help to build consensus for appropriate action. Note that biodiversity can also be considered a stakeholder in its own right as it has its own intrinsic value irrespective of humans.
Links to other initiatives	It is essential that you have a fundamental understanding of your impacts and dependencies on nature and people (the capitals) to enable you to (1) contribute to delivery of the Sustainable Development Goals (SDGs), (2) meet targets such as those being developed by the Science Based Targets Network, or (3) deliver a Net Zero/Positive approach (and many others). A capitals approach is therefore the foundation to many initiatives, and you should link your capital assessments clearly to any relevant initiatives and targets that feature within your objectives.
Impacts on society and business dependencies	Although dependent upon the specific objective, all capitals assessments should potentially consider the value of impacts to society and the value of dependency on the capitals being assessed. Impacts to society should be measured through societal (welfare) values and ideally be considered along the whole value chain, whereas dependencies on capitals should be measured in terms of financial costs. Impacts to society drive the social license to operate in relation to stakeholders affected both directly and indirectly. Business dependencies on the other hand, in effect drive financial performance and mitigation of potential business risks but can also lead to new opportunities such as new markets.
Focused data collection	Potential data requirements increase when more capitals are considered. This requires even more efficiency and focus on only collecting and analysing data needed to inform the decision of your objective. Data consistency (see Protocol Principles in Box 3), through appropriate classification, helps with this focus and enables improved data comparison within and between businesses.
Thresholds and limits	Planetary thresholds (e.g. tipping points), and environmentally and socially acceptable limits (e.g. no deaths are acceptable) must be considered when carrying out a capitals assessment. These are crucial to consider as they can be significant and lead to irreversible changes. They exist at global, regional and local scales. Although there is a lot of work including Planetary Boundaries, Doughnut Economics, and the Global Thresholds and Allocation Council, there are gaps (particularly with human and social capital), and the underpinning science is in some cases still evolving. In such cases, the precautionary principle should be applied.
Science-based Targets, Net Zero, and Net Positive targets	Since the Protocols were developed there has been growing interest in Science Based Targets, Net Zero and Net Positive targets. These are applicable to single as well as multi- and integrated capital assessments. There is growing consensus that businesses should set targets to at least stay within planetary boundaries (see thresholds and limits above), and preferably have a net zero, or even better, a net positive impact, for each material issue within each capital.
Averaging impacts	When providing average results for different parameters (e.g. average values across sites, or average daily pollution levels), always provide supporting information that highlights the variances within the data, for example, providing the highest and lowest values encountered.
Data sources and reliability	Always indicate the source, its date, and level of confidence for each indicator/value used, and where possible, use the latest and most relevant data sources. While secondary data can be useful in terms of saving time and costs, it can often be significantly different from reality, with potentially considerable differences in the results.
Method statement	A method statement should be included to specify and explain assumptions and the approach taken, including the different valuation techniques used. This should also set out the objectives of the assessment, so stakeholders know why the assessment is being undertaken.
Engage and educate stakeholders	Help to educate boards, shareholders, key teams/departments, investors, policy makers, and other stakeholders by engaging them on the purpose, rationale, value and limitations of an integrated capitals assessment.
Expertise and collaboration	Involve appropriately qualified and experienced members in your team to undertake the assessment and involve relevant partners and stakeholders through the process, especially those who are impacted by the assessment.
Indicators used	Indicate the sources and reason for using specific indicators.
Use sensitivity analysis	Where there is uncertainty over the nature and scale of any impacts or the value of assets, include sensitivity analysis, for example, showing a range of possible values and/or likelihood of occurrence.
Verification	Use the Capitals Checker or other independent verification and validation tool or approach. See https://naturalcapitalcoalition.org/natural-capital-protocol/natcap-checker/

Glossary

Attribution	Defining what the origin or cause of a negative or positive impact is, and ensuring the impacts are appropriately assigned.
Baseline	The starting point or benchmark against which changes in capitals attributed to your activities can be compared.
Biodiversity	The variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems (UN 1992).
Capitals approach	When the value of the impacts and dependencies on capital stocks (e.g. Natural, Human, Social and Produced capital) are taken into account to inform decision-making (Capitals Coalition, 2020).
Capitals assessment	An assessment considering more than one capital. This includes multi-capital assessments and integrated capitals assessments.
Counterfactual	A form of scenario that describes a plausible alternative situation, and the environmental conditions that would result if the activity or operation did not proceed (adapted from Cambridge Natural Capital Leaders Platform 2013).
Dependency	A reliance on or use of capital.
Dependency pathway	A dependency pathway shows how a particular business activity depends upon specific features of natural, human, social, or produced capital.
Ecosystem	A dynamic complex of plants, animals, and microorganisms, and their non-living environment, interacting as a functional unit. The most widely used definition of ecosystem services is from the Millennium Ecosystem Assessment (MA 2005a): “the benefits people obtain from ecosystems”.
Ecosystem services	The MA further categorized ecosystem services into four categories: provisioning, regulating, cultural and supporting.
Externality	A consequence of an action that affects someone other than the agent undertaking that action, and for which the agent is neither compensated nor penalized. Externalities can be either positive or negative (WBCSD et al. 2011).
GHG Protocol	The GHG Protocol Corporate Accounting and Reporting Standard provides requirements and guidance for companies and other organizations preparing a corporate-level greenhouse gas (GHG) emissions inventory. This includes defining different “scopes” for the organisational boundaries of direct and indirect emissions.
Human capital	The knowledge, skills, competencies, and attributes embodied in individuals that contribute to improved performance and well-being.
Impact	Positive or negative contribution to one or more dimensions (environmental, economic, health or social) of human well-being.
Impact driver	A measurable quantity of a natural, human, social, or produced resource that is used as an input to production (e.g., volume of water used for crop irrigation) or a measurable non-product output of business activity (e.g., a kilogram of CO ₂ e emissions released into the atmosphere by a manufacturing facility).
Impact pathway	An impact pathway describes how, as a result of a specific business activity, a particular impact driver results in changes in capitals and how these changes in capitals affect different stakeholders.
Integrated capitals assessment	An assessment measuring and valuing all relevant capitals in terms of impacts and dependencies on them, which explicitly takes into account systems thinking including the interconnections both within and between all of the capitals.
Integrated thinking	In this context is a multi-capital management approach that enables organizations to deliver their purpose to the benefit of their key stakeholders over time. It is about creating and preserving value and enabling better decision-making (IIRC, 2020).
Life cycle assessment	Also known as Life Cycle Analysis. A technique used to assess the environmental impacts of a product or service through all stages of its life cycle, from material extraction to end-of-life (disposal, recycling or reuse).
Market value	The amount for which something can be bought or sold in a given market.
Materiality	An impact or dependency on natural, human, social, or produced capital is material if consideration of its value, as part of the set of information used for decision making, has the potential to alter that decision (adapted from OECD 2015 and IIRC 2013).
Materiality assessment	The process that involves identifying what is (or is potentially) material in relation to the capitals assessment’s objective and application.
Measurement	The process of determining the amounts, extent, and condition of natural capital and associated ecosystem and/or abiotic services, in physical terms.
Mitigation hierarchy	A tool which aims to minimise impacts and maximise benefits in decision making, by approaching impacts in this order; avoidance, minimisation, rehabilitation, restoration and finally offsetting.

Monetary valuation	Valuation that uses money (e.g., \$, €, ¥) as the common unit to assess the values of capital impacts or dependencies.
Multi-capital assessment	An assessment measuring and valuing multiple capitals in terms of a business' impacts and dependencies on them, showing the results for each capital 'side by side' (i.e., in a series).
Natural capital	The stock of renewable and non-renewable natural resources (e.g., plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people (Natural Capital Coalition 2016).
Natural Capital Protocol	A standardized framework to identify, measure, and value direct and indirect impacts (positive and negative) and/or dependencies on natural capital.
Natural resources	Natural resources encompass a range of materials occurring in nature that can be used for production and/or consumption and can either be renewable or non-renewable.
Organizational focus	The part or parts of the business to be assessed (e.g., the company as a whole, a business unit, or a product, project, process, site, or incident).
Outcome	The change in the extent or condition of four capital bases (natural, produced, social and human) due to value chain activities.
Price	The amount of money expected, required, or given in payment for something (normally requiring the presence of a market).
Primary data	Data collected specifically for the assessment being undertaken.
Produced capital	The man-made goods as well as all financial assets that are used to produce goods and services consumed by society
Qualitative valuation	Valuation that describes natural capital impacts or dependencies and may rank them into categories such as high, medium, or low.
Quantitative valuation	Valuation that uses non-monetary units such as numbers (e.g., in a composite index), areas, mass, or volume to assess the magnitude of natural capital impacts or dependencies.
Scenario	A storyline describing a possible future. Scenarios explore aspects of, and choices about, the future that are uncertain, such as alternative project options, business as usual, and alternative visions.
Secondary data	Data that were originally collected and published for another purpose or a different assessment.
Single capital assessment	An assessment measuring and valuing impacts and dependencies on a single form of capital (e.g., natural, or human, or social, or produced capital).
Social and Human Capital Protocol	A standardized framework to identify, measure, and value direct and indirect impacts (positive and negative) and/or dependencies on natural capital.
Social capital	The networks together with shared norms, values, and understanding that facilitate cooperation within and among groups.
Spatial boundary	The geographic area covered by the assessment, for example, a site, watershed, landscape, country, or global level.
Stakeholder	Any individual, organization, sector, community or environmental aspect with an interest or "stake" in the result of a decision or process.
Stakeholder capitalism	Stakeholder capitalism is a system in which corporations are oriented to serve the interests of all their stakeholders. Among the key stakeholders are customers, suppliers, employees, shareholders, local communities and the environment. Under this system, a company's purpose is to create long-term value and not to maximize profits and enhance shareholder value at the cost of other stakeholder groups.
Stakeholder primacy	Rather than traditional "shareholder primacy" approaches, the needs of all stakeholders are considered.
System boundaries	Defining the totality and scope of the human and non-human components to be included in the assessment.
Systems thinking	An holistic approach to analysis that adopts a systems-based approach.
Systems-based approach	An approach that analyses the interrelations between human and non-human components across temporal and spatial scales. It involves identifying the drivers of change as determined and impacted by feedback loops, delays and non-linear relationships (Adapted from TEEB, 2018).
Temporal boundary	The time horizon of the assessment, for example, a current "snapshot," a 1-year period, a 3-year period, a 25-year period, or longer.
Trade-off	A situation or decision that involves diminishing or losing one aspect, in return for gains in other aspects.
Validation	Internal or external process to check the quality of the assessment, including technical credibility, the appropriateness of key assumptions, and the strength of your results.
Valuation	The process of estimating the relative importance, worth, or usefulness of capitals to people (or to a business), in a particular context. Valuation may involve qualitative, quantitative, or monetary approaches, or a combination of these.

Valuation technique	The specific method used to determine the importance, worth, or usefulness of something in a particular context.
Value perspective	The perspective or point of view from which value is assessed; this largely determines which costs or benefits are included in an assessment. Business value: The costs and benefits to the business, also referred to as internal, private, financial, or shareholder value. Societal values: The costs and benefits to wider society, also referred to as external, public, or stakeholder value (or externalities).
Value transfer	A technique that takes a value determined in one context and applies it to another context.
Value-chain boundary	The part or parts of the business value chain that comprise upstream, direct operations, and downstream.
Verification	Independent process involving expert assessment to check that the documentation of the assessment is complete and accurate and gives a true representation of the process and results.

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**CAPITALS
COALITION**

About the Capitals Coalition

The Capitals Coalition is a global collaboration transforming the way decisions are made by including the value provided by nature, people, and society. Our ambition is that by 2030 the majority of business, finance, and government will include all capitals in their decision making, and that this will deliver a more fair, just, and sustainable world.