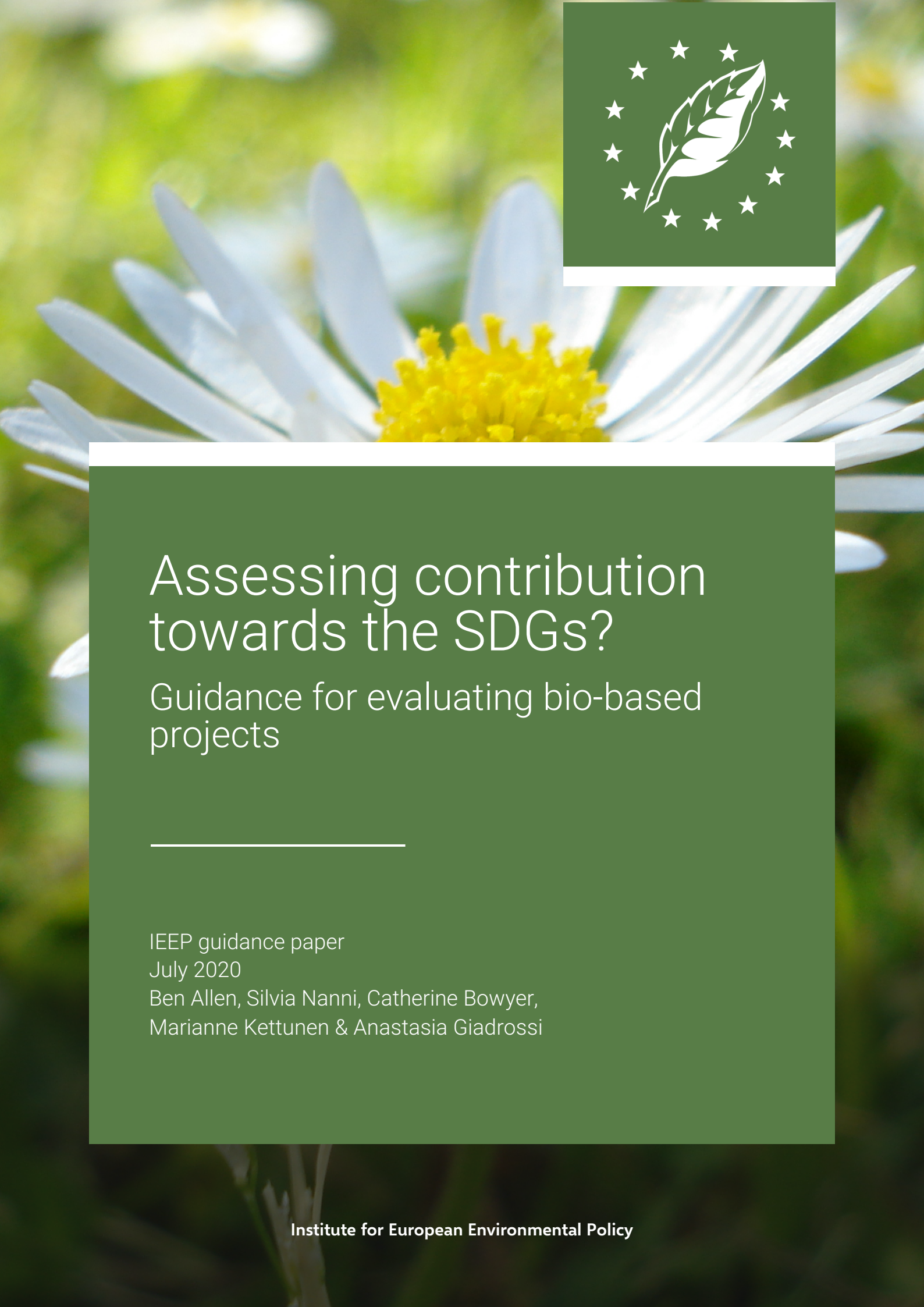

Assessing contribution towards the SDGs?

Guidance for evaluating bio-based projects

IEEP guidance paper
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About IEEP

The Institute for European Environmental Policy (IEEP) is a sustainability think tank. Working with stakeholders across EU institutions, international bodies, academia, civil society and industry, our team of policy professionals composed of economists, scientists and lawyers produces evidence-based research and policy insights.

Our work spans nine research areas and covers both short-term policy issues and long-term strategic studies. As a not-for-profit organisation with over 40 years of experience, we are committed to advancing impact-driven sustainability policy across the EU and the world.

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1. Introduction

The global Agenda for Sustainable Development by 2030 has 17 Sustainable Development Goals (SDGs) and 169 associated targets. was adopted in September 2015. As a result, both private and business sector actors – from countries to companies – are working to integrate environmental, social and economic sustainability as part of their strategies, activities and business models.

The bio-based industries forms in economic terms a sizeable proportion of the EU bioeconomy. They are responsible for more than 30% (€750bn) of the total annual bioeconomy turnover in the EU (€2.4tn) and just under 20% (3.6m people) of all bioeconomy employment (2017 figures)[1]. To further foster the development of the bio-based industries, the European Commission set up the Bio-based Industries Joint Undertaking (BBI JU) under the Horizon 2020 research and innovation programme. The BBI JU is a public-private partnership working at increasing investment in the development of a sustainable bio-based industry sector in Europe. It aims at increasing the competitiveness of Europe and supporting the establishment of Europe as a key player in advanced bio-based products and biofuels globally, while simultaneously providing environmental and socio-economic benefits for European citizens.

To achieve this, BBI JU supports the development and implementation of research, demonstration and deployment activities linked to bio-based products and value chains, from primary production of biomass to processing industry and final use. These activities are carried out as part of the EU programme on research and innovation - Horizon 2020.

To further this work, the Bio-based Industries Consortium (BIC) representing the private sector in the BBI JU, commissioned the Institute for European Environmental Policy (IEEP) to produce the following methodological guidance for assessing whether and how bio-based projects comply and contribute to the Sustainable Development Goals. Intended as a useable and implementable tool, the guidance benefitted from active cooperation with a Task Force comprising of a number of key BIC member organisations.

Aim and scope

The guidance will be used to support BIC in its stated ambition to support the implementation of SDGs through its activities, including both positively contributing to SDGs and limiting possible negative impact on SDGs.

[1] https://biconsortium.eu/bioeconomy-turnover-employment-2017

The aim of this document is to provide guidance to bio-based projects executed by industry, and to be considered in the proposed partnership "Circular Bio-based Europe" under Horizon Europe (possible "successor" of the BBI JU – on how to assess their compliance and contribution to the SDGs. It strives to enable innovation in the monitoring and reporting of SDG delivery through future bio-based projects in Europe.

In particular, the guidance hopes to support the integration of SDGs into projects at the concept development phase and then enable them to measure and monitor projects' contributions to SDGs during their execution. As not all relevant information will be available at the start of a project, the guidance is designed to allow the depth and level of detail of the measuring and monitoring process to develop over the project lifespan.

The guidance can support the projects implemented as part of a *"Circular Bio-based Europe"* initiative, it can also be used more widely by any bio-based project interested in evaluating their compliance with and contributions to the 2030 SDG Agenda.

Assessing the impacts of and contributions by business sectors – including the bio-based industry – on SDGs is a developing field, with growing interest and increasing methodological rigour but existing limitations in the information available (e.g. data gathering and availability). Therefore, the guidance should be considered as a conversation starter with the bio-based industry and SDG expert community on how to make progress with SDG assessment and how measuring and monitoring SDG impacts can incentivise an active contribution of bio-based industry sector on the 2030 Agenda.

Contents

The guidance consists of three parts.

- Part I focuses on identifying those SDGs and SDG targets that are of key relevance in the context of the bio-based industry sector. It also helps to interpret what the rather general and globally oriented SDGs mean when implemented in the bio-based industry context.
- Part II sets out the methodology used to develop the framework for assessing the "SGD performance" of bio-based projects. The framework includes indicators for assessing the foreseen impact of bio-based projects on key SDGs helping to determine thresholds for both no-harm and positive contribution to SDGs.
- Part III sets out the steps to follow when assessing the contribution of your bio-based project or initiative towards the selected SDGs.

2. Part I: SDGs in the context of bio-based industries

This section focuses on identifying those SDGs and SDG targets that are of key relevance in the context of the bio-based industry sector. It also helps to interpret what the general and globally oriented SDGs mean when implemented in the bio-based industry context.

Which SDGs are relevant in bio-based industry context?

Figure 1 captures the list of 17 SDGs that are targeted by the 2030 Agenda for sustainable development. Each SDG is accompanied by a range of SDG-specific Targets that aim to guide their implementation in the global context, including monitor progress against the 2030 deadline.

Bio-based industry can play a role in the delivery any of these SDGs. Given the scope of this project, this role is however more consequential with some SDGs, reflecting the types of operations and value chains the sector generally deals with. From this perspective, the SDGs identified to be of key relevance to the bio-based sector include SDG2 with links to agricultural productivity and sustainable food systems, SDG6 supporting sustainable water supply and quality, SDG9 promoting sustainable industries supported by research and innovation, SDG12 on sustainable consumption and production, SDG13 on climate action, and SDG14 and SDG15 supporting the conservation of aquatic and terrestrial ecosystems.

In general, bio-based industry's impact on the above SDGs can be either positive or negative, resulting from a direct or indirect relationship with a given SDG. For example, innovative means to increase a sector's resource efficiency and circular solutions to manage waste flows, contribute positively towards the SDGs whereas unsustainable sourcing of raw material will result in a negative impact. These relationships and "impact pathways" between bio-based industry and SDGs are further elaborated in Part II below, with specific focus on the project context.

Finally, while the above SDGs can be considered as of key relevance to the bio-based industry sector as a whole, sector players (e.g. individual businesses, initiatives and projects) can also actively contribute to a range of other SDGs, for example, to SDG5 by promoting gender equal policies or to SDG8 by actively seeking solutions that contribute to sustainable economic growth. While focusing on the key SDGs identified above, the assessment framework introduced in Part II allows flexibility for the users also to consider additional SDGs, if considered relevant in their specific context.

FIGURE 1: UN Sustainable Development Goals (SDGs) most directly impacted by the bio-based industry sector.

How to interpret SDGs and their targets in a bio-based industry context?

SDGs and their targets are globally oriented, not sector specific, and not all are relevant in the bio-based industry context. Therefore, SDG targets first need to be narrowed down to the most relevant ones and interpreted – in an action-oriented way – in the context of bio-based industry, in order to meaningfully apply them in practice.

Table 1 identifies the most relevant targets for the key SDGs and then summarises, in an actionable manner, what contribution towards these targets means in the specific context of the bio-based industry sector. These form the basis for the assessment framework presented in Part II.

TABLE 1: For key SDGs relevant to the bio-based industry sector, identification of the most relevant targets and the action-oriented interpretation of these targets in the bio-based industry context

Target (no)	Target (name)	Target goals in the bio-based industry context
	SDG 2: Zero Hunger	
2.3	By 2030, double the **agricultural productivity** and **incomes of small-scale food producers** [...] including through **secure and equal access to land**, other **productive resources and inputs**, **knowledge**, **financial services**, **markets and opportunities for value addition and non-farm employment**.	Support agricultural productivity Support incomes of small-scale food producers Secure access to land Support knowledge creation Support markets Support value addition and non-farm employment
2.4	By 2030, ensure **sustainable food production systems** and implement **resilient agricultural practices that increase productivity and production**, that **help maintain ecosystems**, that **strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters** and that progressively improve **land and soil quality**.	Ensure sustainable food production systems Put in place resilient agricultural practices that increase productivity and production Put in place resilient agricultural practices that help maintain ecosystems Put in place resilient agricultural practices that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters Economic and environmental practices that progressively improve land and soil quality
2.5	By 2020, maintain the **genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species** [...] promote **access to and fair and equitable sharing of benefits** arising from the utilization of genetic resources and associated traditional knowledge [...]	Maintain genetic diversity of seeds, cultivate plans and farmed and domesticated animals and their related wild species Promote access to fair and equitable sharing of benefits

2.A	Increase investment [...] in **rural infrastructure**, **agricultural research and extension services**, **technology development and plant and livestock gene banks** in order to enhance agricultural productive capacity in developing countries [...]	Increase rural infrastructure Increase agricultural research and extension services Increase technology development Increase plant and livestock gene banks
2.C	Adopt measures to ensure the proper functioning of **food commodity markets** [...]	Support food commodity markets
	SDG 6: Clean Water and Sanitation	
6.3	By 2030, improve **water quality** by **reducing pollution**, **eliminating dumping** and **minimizing release of hazardous chemicals and materials**, **halving the proportion of untreated wastewater** and substantially **increasing recycling and safe reuse globally**	Improve water quality Pollution reduction and dumping elimination Controlling and limiting the release of hazardous chemicals and materials Reducing untreated wastewater Increase water recycling and safe reuse
6.4	By 2030, substantially increase **water-use efficiency** across all sectors and ensure **sustainable withdrawals and supply of freshwater** to address water scarcity and substantially reduce the **number of people suffering from water scarcity**	Increase water use efficiency Sustainable water withdrawals from all water bodies Reduce water scarcity
6.6	By 2020, protect and restore **water-related ecosystems**, including mountains, forests, wetlands, rivers, aquifers and lakes	Support ecosystem protection
	SDG 9: Industry, Innovation and Infrastructure	
9.1	Develop quality, reliable, sustainable and resilient **infrastructure** [...] to support **economic development** and **human well-being** [...]	Develop infrastructure to support economic development Develop infrastructure to support human well-being
9.4	By 2030, upgrade **infrastructure** and retrofit **industries** to make them sustainable, with increased **resource-use efficiency** and greater adoption of **clean and environmentally sound technologies and industrial processes**, with all countries taking action in accordance with their respective capabilities	Infrastructure upgrade Industry retrofit Increase resource efficiency Support clean and environmentally sound technologies and industrial processes
9.5	Enhance **scientific research**, upgrade the **technological capabilities of industrial sectors** in all countries, in particular developing countries, including, by 2030,	Enhance scientific research Improve technological capabilities of industrial sectors

	encouraging **innovation** and substantially increasing the number of **research and development workers** per 1 million people and **public and private research and development spending**	Promote Innovation Increase research and development workers Increase public and private research and development spending
9.B	Support domestic **technology development**, **research and innovation** in developing countries, including by ensuring a **conducive policy environment** for, inter alia, industrial diversification and value addition to commodities	Support technology development Support research and innovation
	SDG 12: Responsible Consumption and Production	
12.1	Implement the 10-year framework of programmes on **sustainable consumption and production** […]	Sustainable consumption and production
12.2	By 2030, achieve the **sustainable management** and **efficient use of natural resources**	Achieve sustainable management of natural resources Achieve efficient use of natural resources
12.3	By 2030, halve per capita global **food waste** at the retail and consumer levels and reduce **food losses** along production and supply chains […]	Reduce food waste
12.4	By 2020, achieve the **environmentally sound management of chemicals and all wastes** throughout their life cycle, in accordance with agreed international frameworks, and significantly **reduce their release to air, water and soil** in order to minimize their **adverse impacts on human health and the environment**	Environmentally sound management of chemicals and all wastes Reduce chemical and waste releases to air, water and soil
12.5	By 2030, substantially reduce **waste generation** through prevention, reduction, recycling and reuse	Reduce waste generation
12.6	Encourage companies, especially large and transnational companies, to adopt **sustainable practices** and to integrate **sustainability information** into their reporting cycle	Support sustainable practices Integrate sustainability information
12.A	Support developing countries to strengthen their **scientific and technological capacity** to move towards more **sustainable patterns of consumption and production**	Strengthen scientific and technological capacity Support sustainable patterns of consumption and production

	SDG 13: Climate Action	
13.2	Integrate **climate change** measures into national policies, strategies and planning	Support climate change action
	SDG 14: Life Below Water	
14.1	By 2025, prevent and significantly reduce **marine pollution** of all kinds [...]	Reduce marine pollution
14.2	By 2020, sustainably manage and protect **marine and coastal ecosystems** to avoid significant adverse impacts, including by strengthening their **resilience**, and take action for their **restoration** in order to achieve healthy and productive oceans	Ecosystem protection Protect marine and coastal resilience Protect marine and coastal restoration
14.A	Increase **scientific knowledge**, develop **research capacity** and transfer marine **technology** [...] in order to improve **ocean health** and to enhance the contribution of **marine biodiversity** to the development of developing countries [...]	Increase scientific knowledge Increase research capacity Increase technology improvement to support marine protection
14.C	Enhance the **conservation and sustainable use of oceans and their resources** by implementing international law as reflected in UNCLOS [...]	Enhance the conservation and sustainable use of oceans and their resources
	SDG 15: Life on Land	
15.1	By 2020, ensure the conservation, restoration and sustainable use of terrestrial and **inland freshwater ecosystems and their services** [...]	Protect and restore Inland freshwater ecosystem and their services
15.2	By 2020, promote the implementation of **sustainable management of all types of forests**, halt **deforestation**, restore **degraded forests** and substantially increase **afforestation and reforestation** globally	Promote sustainable forest management Reduce deforestation Restore degraded forests Increase afforestation and reforestation
15.3	By 2030, combat **desertification**, restore **degraded land and soil**, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	Combat desertification Restore degraded land and soil
15.4	By 2030, ensure the conservation of **mountain ecosystems** [...]	Protect mountain ecosystems

15.5	Take urgent and significant action to reduce the degradation of **natural habitats**, halt the **loss of biodiversity** and, by 2020, protect and prevent the extinction of **threatened species**	Reduce degradation of natural habitats Reduce loss of biodiversity Protect threatened species
15.9	By 2020, integrate **ecosystem and biodiversity values** into national and **local planning**, **development processes**, **poverty reduction strategies and accounts**	Integrate ecosystem and biodiversity values
15.A	Mobilize and significantly increase **financial resources** from all sources to conserve and sustainably use **biodiversity and ecosystems**	Increase financial resources for biodiversity and ecosystems
15.B	Mobilize significant resources from all sources and at all levels to **finance sustainable forest management** and provide adequate incentives to developing countries […]	Mobilise financial resources for sustainable forest management

3. Part II: Method used to assess the SDG performance of bio-based projects

This section sets out the methodology used to develop the framework for assessing the "SDG performance" of bio-based projects. The framework includes indicators for assessing the foreseen impact of bio-based projects on key SDGs helping to determine thresholds for both no-harm and positive contribution to SDGs.

Assessment logic

The assessment logic comprises three basic steps:

Identify the specific indicator that needs to be measured and that represents the SDGs being assessed

Define the metric by which that indicator is measured

Identify the threshold which allows the determination of whether a contribution has been made or not

Identifying indicators

The SDG targets in Table 1 are broken down into 74 specific target goals that the SDGs aim to deliver. Assessing the contribution of a project to each and all of these would be too burdensome to be practical. The approach set out in this guidance takes those target goals and brings them together first into specific themes (such as climate action) and then clusters them in a way more relatable to existing reporting and monitoring that may be taking place within projects or organisations (such as the Economic, Environmental, and Social considerations surrounding sustainability). These are then used to develop specific reporting indicators to assess whether and if a project is delivering against multiple SDGs (Figure 2). Table 2 shows the clustering of the SDG target goals set out in Table 1 into specific themes and broader clusters and their relationship to the SDG targets.

FIGURE 2: Process of selecting reporting indicators

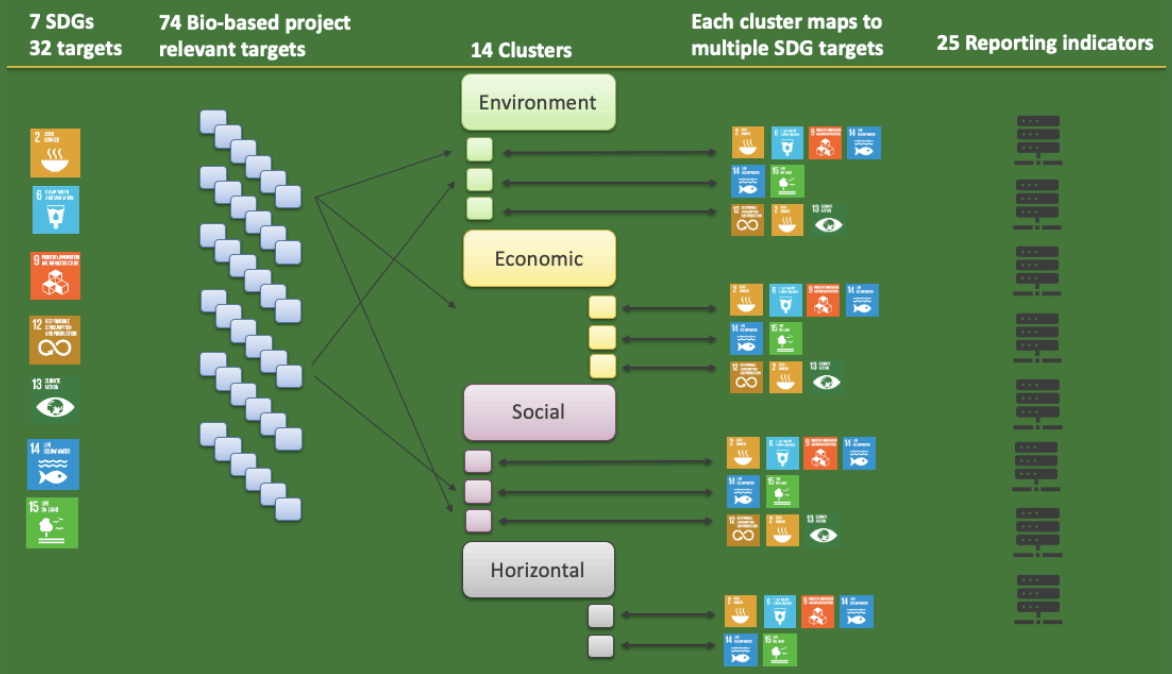


TABLE 2: Target themes and their relationship to SDG targets

Clustering by theme	SDG targets
1. Economic theme	
- Support agricultural productivity	2.3; 12.1
- Support income creation and non-farm employment	2.3, 9.5
2. Social theme	
- Secure access to land & fair and equitable sharing of benefits	2.3; 2.5
3. Environmental theme	
- Climate change action	2.4; 13.2; 15.2
- Ecosystem / biodiversity protection	2.4; 6.6; 15.1; 15.2; 15.4; 15.5; 15.9
- Land / soil protection	2.3, 2.4; 15.2; 15.3
- Marine protection	14.1; 14.2; 14.C
- Pollution control	6.3, 6.6
- Resource efficiency	2.5; 2.A; 6.3; 9.4; 12.1; 12.2; 12.3; 12.4; 12.5; 15.2
- Circular economy	6, 12.5, 13, 15
- Water protection	6.3; 6.4; 6.6
4. Horizontal theme	
- Support capacity building and extension services	2.3; 2.A
- Support corporate social responsibility	12.6
- Support infrastructure development	2.A; 9.1; 9.4

Whilst there are only 14 clusters to be monitored across all the selected SDGs, some do require multiple indicators to be assessed in practice, so as to reflect fully the SDG targets. For example, under the land and soil protection cluster, we have selected two indicators to measure the status of soils. These are soil erosion and soil carbon content. Together both are necessary to provide an indication on the status of soil quality and thus the impact being made on SDG 15.3.

Defining the metric of assessment

The metric or unit of assessment refers to how the indicator is measured in practice. Metrics are important in that they define (mostly in quantitative terms) the measurement of how much a project is contributing towards an SDG.

> ***Example:*** *For the soil erosion indicator, the specific metric proposed is the amount of soil lost in the production of one unit of output (kg/unit output).*

Within the context of this guidance, units have been proposed for each of the SDG indicators. They are based on commonly recorded units of information and selected on their ability to represent progress towards indicators that represent the SDG targets.

Metrics are designed to be common in nature (across all project assessments) but their main importance is that they are internally consistent within project reporting, i.e. they do not change over time and so can be used to track and monitor progress. As this methodology does not intend to compare one project to another, it is possible to use a different metric for a specific project. This could be in such cases where another metric is already being used to measure a specific indicator (such as in existing sustainability monitoring). Such metrics could be adopted providing their link to the SDG indicators set out in the assessment template can be clearly demonstrated.

Identifying thresholds for contribution

A threshold is the point above or below which we can define if a contribution to the SDG targets has been made, i.e. has there been a change or not as a result of the project. For most of the indicators in this guidance, the threshold for change is a reference level or baseline established at the beginning of the project.

For the purpose of this methodology we are not limiting reporting only to where a quantification of how much of a contribution can be made – although this is desirable. For a number of indicators such quantification may not be possible in practice, and thus we are also looking to ascertain whether or not change has happened, thus allowing the demonstration that a bio-based project has contributed to an SDG or its targets. In the future it may be that the significance

of the contribution being made needs to be assessed, which would require an amendment to the current approach.

The threshold therefore gives us a marker allowing us to determine one of three results of a bio-based project:

- No impact - the project has limited impact on the target indicator (positively or negatively) or has no interaction at all.
- Positive impact - the project leads to an improvement in target indicator, such as a reduction in GHG emissions, greater restoration of habitat, etc.
- Negative impact the project leads to a decline in target condition, such as increase in GHG emissions, reduction in job creation, etc.

A contribution can be considered for the first two results, no impact and positive impact.

Where there is no impact on a specific indicator, this can be considered a contribution to the SDGs depending on the target.

> *Example: For soil erosion it may be that the soil erosion rate in the area covered by a project does not change as a result of the implementation of the project. Whilst soil erosion has not been improved, it has also not worsened from its previous or baseline state. We can therefore state that the SDG linked to soil erosion has not been negatively impacted by the bio- based project.*

These incidences of no impact become more relevant in the context where other SDG targets have been improved, or where a bio-based project is delivering added value in another area. Using the same example as above, soil erosion may not have changed, but a new bio-based process could have been established, or there may have been an increase in jobs or reduction in GHG emissions.

An ideal scenario is where all relevant SDG targets are improved by the project. However, in many cases a good outcome would be if some SDG targets are improved whilst there is no significant harm being brought to other SDG targets – i.e. a net gain.

Indicators, metrics and thresholds in practice

In practice and for indicators to be useful in tracking progress towards an SDG target, it is usually necessary to have something against which a result can be compared. Whilst a threshold will set the point at which we are confident that a contribution has been made, these are often relative to a given point in time. For example, understanding that there is a certain level of soil erosion does not provide us any information on which to make a judgement unless we have something to compare it to. A threshold could be set in absolute terms (for example a certain kg soil lost per unit of product), but this becomes challenging in the context of different bio-based projects,

processes and innovations, and there is a lack of information on which to base such thresholds. This lack of information arises from a variety of causes, with two being specifically relevant here. The first is the way in which data and statistics are collected and reported centrally in the EU. Often, they are purposeful in that they are gathered as a result of a specific policy or to monitor a specific trend rather than being universally applicable to different needs. Initial approaches to monitoring progress towards the SDGs in Europe used existing indicators designed for other purposes as proxies for SDG tracking. Whist this serves a purpose to starting monitoring, the specifics of the SDG indicators are not themselves being measured directly. The second is that there is a great deal of site or context specific information that is required in order to make a judgement about what is 'good' or 'bad' in the context of a given objective. For example, the increase of soil organic carbon by 5kg/ha could be significant in certain soil types or locations, and insignificant in others where greater increases are possible. For the majority of indicators and objectives discussed in this guidance, there is no 'agreed' set of thresholds for use in different contexts.

In this methodology we have three types of measurement that give us the basis for establishing if a threshold has been reached or not.

There are some indicators for which we have a reference value for comparison. These allow us to measure the condition of the indicator at the start of a project and then track the progress of that indicator over time by re-measurement. An example could be soil erosion, which can be measured and re-measured.

There are indicators for which there is no reference value but where they also do not need a comparator. For example, the indicator for 'compliance with habitat protection legislation' is either true or false, or 'water recovery and reuse' is either happening or it is not. With these indicators no baseline needs to be recorded at the beginning of the project – they are clearly identified in the assessment template.

There are indicators for which there is no reference value, but they do (ideally) need to be compared to something**.** For example, the carbon intensity of a product as a means of measuring contribution to climate action. In the abstract, the carbon intensity of a product means little unless we can compare it to the same product made by another means (e.g. fossil based) or a similar product. It is likely that there will be some products or processes that have no comparator. In these cases, the measurement of the indicator is still important in the context of building an information base on which to assess the SDGs, even if we cannot judge whether a contribution has been made to the targets. Measurement of changes in carbon intensity or GHG emissions should be made throughout the duration of the project.

4. Part III: Assessment framework

This section sets out the steps to follow when assessing the contribution of your bio-based project or initiative towards the selected SDGs. It is designed to guide the user through the assessment template provided in Annex 1.

Guiding principles for the assessment

This is a live document intended to start the process of measuring bio-based projects contribution to the SDGs. It should be improved and built on as more is known about measuring progress.

> *The key guiding principle for the approach taken is that monitoring of information on SDG delivery is an important first step in orientating bio-based projects towards SDGs in a more measurable way.*

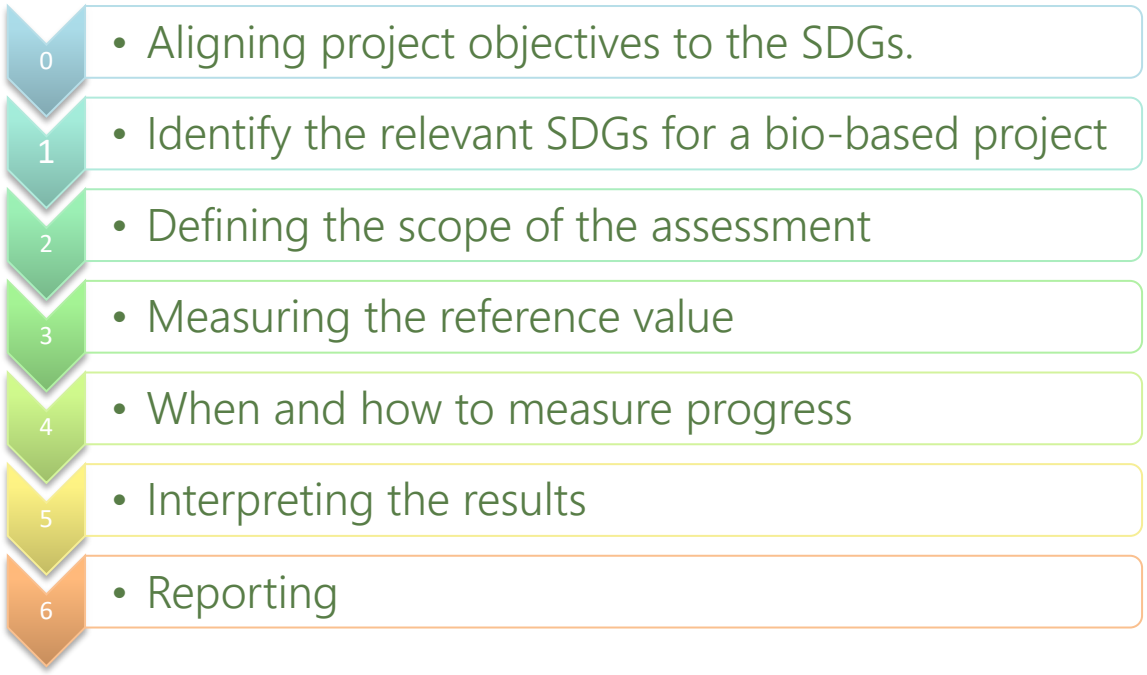
The approach developed:

- Aims to measure the contribution made by a project to the SDGs
- Does not look to compare projects within the BBI-JU or outside

We also recognise that:

- Bio-based projects vary considerably – the methodology aims to report consistently.
- Many bio-based projects are innovative or novel therefore data can be scarce on which to make comparisons or monitor progress. Recording of information and taking baselines can help to improve this methodology and lead to improvements in project performance in subsequent years, or when the work is scaled up.
- Many bio-based projects lack a fossil/mineral comparator on which to make a comparative judgement of their SDG contributions. The methodology recognises this and does not attempt to make this comparison, rather to monitor progress of the project compared to a baseline established at the beginning.
- Many bio-based projects are initiated by small and medium sized enterprises. The capacity of these types of organisations to undertake detailed life cycle assessments may be limited. Understanding and sharing good practice across a Circular Bio-Based Europe partnership and through BIC can help to build this capacity and approaches that fit with small organisations. The methodology aims to be robust, but simple.
- SDG baseline and monitoring information is patchy and is a recognised issue with monitoring SDG delivery at a detailed level. Information recording is improving within the EU, and baseline information is being asked for each project rather than using standard information from external sources. Non-bio-based projects or processes (i.e. fossil or mineral) also lack an established SDG monitoring framework, from which to draw comparison.

Assessment process



Step 0: Aligning project objectives to the SDGs

The first step in the move to monitoring SDG progress for bio-based projects is to build SDG delivery and thinking into the project from the conception phase. This will allow greater synergy between the monitoring of project objectives and contribution to the SDGs.

It is recognised that it may not always be possible or practical do implement this step for some existing projects, therefore all projects should go through a phase of identifying those SDGs that are relevant to monitor.

Step 1: Identifying relevant SDGs for a project

Step 1 of this process is to identify which of the seven SDGs are directly relevant to a given bio-based project.

Where possible information should be reported on all seven SDGs, however there will be cases where a project will have limited or no interaction with some of the SDGs or their targets. For example, a project may be implemented in a forest context and have no interaction with SDG 2 in relation to agriculture, similarly some may have no impact or relationship to the marine environment. Where the SDGs for assessment are identified, their corresponding indicators for measurement should be used (as set out in the assessment template).

Where an SDG, or specific SDG target is considered irrelevant for monitoring within a project, a clear justification should be given and included within the assessment template in Annex 1.

An obligatory reporting on specific SDG indicators e.g. climate or biodiversity could be considered (including the possibility of no reports in case the project can explain why the project is not relevant for climate and/or biodiversity).

Step 2: Defining the scope of assessment

The scope of the assessment should be defined by the project itself. Here a short narrative should be provided in relation to the extent of the project and where SDG target impacts are to be considered relevant to project activities.

Given the significant variety of bio-based projects, the scope of the assessment cannot be set in advance through this methodology. In order to simplify the assessment process, it is advised to limit the scope of the assessment to impacts that can be measured clearly by the project and within the project timeframe. In this way projects are not expected to assess all down-stream impacts of project activities, which may be present in different sectors of the value chain or different geographies.

> ***Example:*** *The measurement of water pollution should take place on the water bodies (lake, river or groundwater) that will be impacted immediately downstream of the project activity.*

Step 3: Measuring the reference value

The assessment template in Annex 1 sets out the type of reference value to be measured at the beginning of the monitoring process, i.e. setting the baseline from which to assess progress. Ideally this should take place at or before the project is implemented so there is a clear record of the SDG target status before any impact of the project affects those targets.

Both the indicator (the information used to monitor progress to the SDG target) and the metric (the units used to measure the indicator) are set out in the assessment template. Any deviation from the metrics used should be clearly documented and justified (such as the units being part of existing project reporting).

In the measuring of the baseline, please note any issues with data collection that could be used to improve future data collection approaches across bio-based projects.

Step 3: When and how to measure progress

Once a reference value is established, repeat measurements should be taken in order to assess progress. The period of this assessment will likely vary from project to project and the assessment

window should be defined during the baselining process. Where more than one interim reporting window is defined, these should be included clearly within the assessment template.

The following general principles should be followed when setting interim monitoring windows:

- Optional: Where possible, progress should be monitored at an interval early enough in the project to allow course correction and modification of project activities to improve indicator condition.
- Mandatory: A final monitoring – at project end – should be undertaken for all projects so a baseline (beginning) and end point can be compared in order to establish SDG target progression.

Step 4: Interpreting the results

Once the final monitoring has taken place, the assessment template should be complete with information regarding:

- SDGs being monitored and within scope of the project
- Baselines recorded for all indicators (where relevant)
- Optional: Interim changes to target condition recorded.
- End of project target condition recorded.

With this information we are then able to make an assessment of whether and how a project has contributed to the SDG targets. A short narrative report should be provided in section 1 of the assessment template that summarises the contribution made by the project.

Interpreting the results of the assessment involves (for most indicators) comparing the baseline condition at the start of the project to the final condition at project end. One of three outcomes could take place:

- Decline in target condition from the reference value – this would indicate that the project has had a negative impact on the target indicator. Here it should be interrogated to see if this is genuinely as a result of the project being implemented or if there are other reasons that a negative impact may have been realised. For example, reduction in water availability could be linked to a drought year within a given catchment.
- No change in target condition from the reference value – this would indicate that the project has had little or no impact on the target indicator. Here it should be described whether the project should have delivered an improvement (i.e. part of the project objectives or not).
- Increase in target condition from the reference value – this would indicator that the project has had a positive impact on the target indicator. Here it should also be interrogated to see if this is genuinely as a result of the project being implemented or if there are other reasons at play.

As this methodology relies on the use of specific indicators that represent multiple SDGs, it will be necessary to judge which SDG targets have been affected where an indicators condition has changed. The assessment template (section 2) includes a clear description of the SDG targets that are associated with each indicator measured. Where an indicator has improved, we can assume that there has been a contribution to the associated SDGs.

> ***Example:*** *Where there has been an increase in the indicator "Overall value of jobs created along the value chain of the project & distribution according to small-holders and suppliers, and by job area (e.g. primary production, researchers, etc.)" we can reasonably assume that a contribution has been made to SDG targets 2.3 and 9.5.*

Therefore, when interpreting the results, we can say with a reasonable degree of confidence that the project has contributed to SDG targets 2.3 and 9.5 as there has been an increase in the number of jobs created along the value chain associated with the project. Such statements should be included within the narrative report (section 1) of the assessment template.

Step 5: Reporting

This guidance is provided to support the monitoring and assessment for bio-based projects on how to assess their compliance and contribution to the SDGs. There is currently no formal monitoring or reporting requirement, and no central location or body which will collect these reports at this time. This may change in future, and projects and organisations are encouraged to keep copies of the reports they produce, and the data collected, to inform future monitoring and assessment approaches.

5. Annex 1: Assessment template

Section 1: Narrative report

[In no more than 1000 words, please describe the contribution made by this project to the SDGs. The following information should be included:]

- *Which SDGs were in scope of the assessment?*
- *SDGs where targets did not change*
- *SDGs where targets improved*
- *SDGs where targets declined*
- *Any lessons learned from the approach taken or the monitoring process to inform future assessments.*

Section 2: Assessment template

In the table below, please indicate:

- whether the SDG or a specific SDG target has been included for assessment. A justification should be provided where a specific SDG or target is not considered relevant for monitoring
- whether specific SDG targets are part of the objectives of the project

SDG	Included?	Link to project objectives?
2. Zero Hunger		
6. Clean water and sanitation		
9. Industry, Innovation and Infrastructure		
12. Responsible consumption and production		
13. Climate action		
14. Life below water		
15. Life on Land		

When completing the assessment, for those indicators that require a reference value (baseline at start) assessment, please report the baseline in the assessment box at the beginning of a project.

Economic theme			
Cluster	**SDG(s)**	**Indicator and metric**	**Assessment**
Support agricultural productivity	2.3, 12.1	Sustained productivity of feedstock or by farm/plantation (tons / ha per year)	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Increased productivity compared to baseline -ve = decreased productivity compared to baseline	
Support income creation and non-farm employment	2.3, 9.5	Overall number of jobs created along the value chain of the project & distribution according to small-holders and suppliers, and by job area (e.g. primary production, researchers, etc.)	
Threshold	Reference value	Baseline at start	
	Impact	Full time equivalent jobs created compared to the baseline	

Social theme			
Cluster	**SDG(s)**	**Indicator and metric**	**Assessment**
Secure access to land and fair and equitable sharing of benefits	2.3, 2.5	Compliance with the Voluntary Guidelines on Tenure (VGGT) to secure land tenure and ownership as a result of the project	
Threshold	Reference value	n/a	
	Impact	Documented and/or verified compliance with VGGT	

Environment and Climate theme			
Cluster	**SDG(s)**	**Indicator and metric**	**Assessment**
Climate change action	2.4; 13.2; 15.2	Carbon intensity as measured trough Life cycle GHG emissions (gr eq. CO_2 / product unit)	
Threshold	Reference value	If one is available for a specific product this should be used. If no reference value is available (lack of comparative product) please monitor GHG emissions throughout the project.	
	Impact	+ve = lower lifecycle GHG emissions compared to reference value -ve = higher lifecycle GHG emissions compared to reference value Or Measurement only throughout the duration of the project	
Climate change action	2.4; 13.2; 15.2	Carbon intensity as measured trough (kg CO_2/product)	
Threshold	Reference value	If one is available for a specific product this should be used. If no reference value is available (lack of comparative product) please monitor carbon intensity throughout the project.	
	Impact	+ve = reduced carbon intensity compared to reference value -ve = increased carbon intensity compared to reference value Or Measurement only throughout the duration of the project	
Ecosystem / biodiversity protection	2.4; 6.6; 15.1; 15.2; 15.4; 15.5; 15.9	Area (ha) of protected and/or High Conservation Value (HCV) areas and land with significant biodiversity values are [used, degraded, destroyed per product unit]	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Area maintained or increased -ve = Area lost or degraded	
Ecosystem / biodiversity protection	2.4; 6.6; 15.1; 15.4; 15.5; 15.9	Presence of a plan or process to ensure that the native vegetation and wildlife are being maintained and the rare, threatened or endangered species permanently or temporarily present at the site(s) of production are protected	
Threshold	Reference value	n/a	
	Impact	Compliance = Documented and/or verified presence of plan	
Ecosystem / biodiversity protection	2.4; 6.6; 15.1; 15.4; 15.5; 15.9	Compliance with habitat protection legislation at EU, state or national level in country of origin	
Threshold	Reference value	n/a	

	Impact	+ve = Documented and/or verified compliance -ve = non-compliance	
Land / soil protection	2.3; 2.4; 15.2; 15.3	% of biomass obtained from land with high carbon stock (e.g. peatland or wetland)	
Threshold	Reference value	Baseline at start	
	Impact	+ve = No biomass sourced from such land areas or reduction in sourcing -ve = Biomass sourced from such land area	
Land / soil protection	2.3; 2.4; 15.3	Area of land (ha) restored from a degraded state (e.g. contaminated, salinated, eroded)	
Threshold	Reference value	n/a	
	Impact	+ve = Documented and/or verified area restored -ve = Area degraded as a result of activities	
Land / soil protection	2.3; 2.4; 15.3	Soil erosion/loss in kg per unit of output	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Reduction in soil loss per unit output -ve = Increase in soil loss per unit output	
Land / soil protection	2.3; 2.4; 15.3	Soil organic carbon content (kg of C/kg of soil)	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Kg of carbon / kg of soil increase (%) compared to the baseline -ve = Kg of carbon / kg of soil decrease (%) compared to the baseline	
Marine protection	14.1; 14.2; 14.C	Level of pollution within the sourcing area of the project [please refer to the pollution control indicators]	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Level of pollution decrease (%) compared to the baseline -ve = Level of pollution increase (%) compared to baseline	
Pollution control	6.3; 6.6	Waste generated (kg per ton of product and process)	
Threshold	Reference value	n/a	
	Impact	Measurement only throughout the duration of the project	
Pollution control	6.3; 6.6	Amount of volatile organic compounds (VOC) emitted (parts per billion (ppb), parts per million (ppm), or as micrograms per cubic meter (µg/m3))	
Threshold	Reference value	n/a	
	Impact	Measurement only throughout the duration of the project	

Pollution control	6.3; 6.6	Management effort to minimize use of hazardous substances	
Threshold	Reference value	n/a	
	Impact	Compliance = Documented and/or verified approach in place	
Resource efficiency	2.5; 2.A; 6.3; 9.4; 12.1; 12.2; 12.3; 12.4; 12.5; 15.2	Energy efficiency of the systems of production and transformation of the products	
Threshold	Reference value	n/a	
	Impact	Measurement only throughout the duration of the project	
Circular Economy	All 6, 13, 15 and 12.5	Procedures for recovering materials for other uses, such as incineration for raising process steam or heating, or agricultural use	
Threshold	Reference value	n/a	
	Impact	Compliance = Documented and/or verified approach in place	
Circular Economy	All 6, 13 and 15	Degree of product and process circularity	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Increase from baseline -ve = decrease from baseline	
Water protection	6.3; 6.4; 6.6	Water quality in sourcing area	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Increase from baseline -ve = decrease from baseline	
Water protection	6.3; 6.4; 6.6	Water recovery and reuse	
Threshold	Reference value	n/a	
	Impact	Compliance = Documented and/or verified recovery and reuse taking place	

Horizontal theme			
Cluster	**SDG(s)**	**Indicator**	**Assessment**
Support capacity building and extension services	2.3; 2.A	Training and re-qualification of the workforce in the bioeconomy sector (share of workers, % per year)	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Level of training and re-qualification increase [x%] compared to the baseline -ve = Level of training and re-qualification decrease [x%] compared to the baseline	
Support corporate social responsibility	12.6	Corporate social responsibility reporting system or process in place	
Threshold	Reference value	n/a	
	Impact	Compliance = Documented and/or verified corporate social responsibility reporting system or process in place	
Support infrastructure development	2.A; 9.1; 9.4	Gross expenditure aimed at upgrading existing infrastructures and retrofit industries as proportion of the overall project value (euro / year)	
Threshold	Reference value	Baseline at start	
	Impact	+ve = Level of investments increase [x%] compared to the baseline -ve = Level of investments decrease [x%] compared to the baseline	

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