Linking LCA and SDG 12

Goal 12. Ensure sustainable consumption and production patterns

PRé
Fact-based sustainability

Life Cycle Initiative

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Do you have a sustainability challenge for us? We would be happy to discuss it together.

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12.1 Introduction

SDG 12 deals with the environmental degradation that accompanied the economic and social progress of the last century. The SDG promotes the increase of human wellbeing through decoupling economic growth from resource use and environmental degradation. The reduction of the ecological footprint and efficient management of resources are emphasised.

There are three areas that are highlighted when it comes to describing SDG 12 (UNEP, 2020a):

- **Water**. Only less than 3% over the water on the earth is drinkable, and 2.5% is frozen. We have to rely on 0.5% of the water, and use this for all our freshwater needs. Water use and pollution are important issues: excessive freshwater use is contributing to water stress, and we're currently polluting our water faster than it can be purified.
- **Energy**. Energy use will continue to grow in OECD countries. Transport, commercial and residential energy use are the main drivers for the increase of energy consumption.
- **Food**. Food production creates significant environmental impacts, while still 1/3 of all produced food is being wasted. The food sector accounts for around 22 per cent of total Greenhouse Gas emissions through the use of fuel, but also the release of soil carbon. Furthermore it is an important driver for biodiversity loss.

These areas also point to interactions and overlap with other SDGs, such as SDG 2 (Zero hunger), SDG 6 (Clean water and sanitation) and SDG 7 (Affordable and clean energy). However, the targets do not specifically reflect these elements, so the actual overlap of targets is limited.

This SDG focusses on the way shifts in consumption can contribute to reaching a sustainable world, as this can reduce the impact of production, the consumption of energy and water, and reduce waste and inefficiencies. It aims to address a wide range of consumption patterns, by governments, companies and especially consumers, in their purchasing behaviour patterns and how these can be encouraged to make informed purchasing decisions, these ideas are for example developed in the "Goodlife goals"[1] that focus on what consumers can do.

Overall, resource efficiency on the supplier side, and responsible consumption on the demand side are the main issues of this SDG.

12.2 Targets and indicators of SDG 12

Lifecycle thinking plays a role in the description of the SDG (UN, 2020), and identifying hotspots within value chains is mentioned as a crucial step. Lifecycle thinking is reflected in the targets of SDG: target 12.2 deals with resource use, and target 12.3, 12.4 and 12.5 concern waste in a life

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[1] See: https://www.goodlifegoals.org/

cycle perspective. Other main elements that are reflected in the targets are awareness on sustainability issues, sustainability reporting and sustainable procurement.

Table 1. The targets and indicators defined for SDG 12

Target	Indicator
12.1 Implement the 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies
12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.1 Material footprint, material footprint per capita, and material footprint per GDP
	12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
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, including post-harvest losses	12.3.1 Global food loss index
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	12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement
	12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable	12.6.1 Number of companies publishing sustainability reports

practices and to integrate sustainability information into their reporting cycle

12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	12.7.1 Number of countries implementing sustainable public procurement policies and action plans
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	12.8.1 Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	12.a.1 Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	12.b.1 Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools
12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels

12.3 Classifying the links between SDG targets and LCA impact categories

This section describes the qualitative links of targets to LCA impact categories. Whether there is a link or not is based on analysis of the SDG goals, targets and indicators, and on the definitions of the LCA indicators. Where necessary, this is supplemented with expert judgement.

1.1.1. Target 12.1 The 10 Year Framework of Programmes on Sustainable Consumption and Production

Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.

This target is about the implementation of the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns (UNEP,2020b). This program includes different programs: Sustainable Public Procurement, Consumer Information for SCP, Sustainable Tourism, Sustainable Lifestyles and Education, Sustainable Buildings and Construction, and Sustainable Food Systems. Some of the programs may have a link with companies or products, however the focus on the target is clearly on countries that have adopted these programs, and not businesses. Therefore, the link with products is limited, and no link with LCA is included for this target.

1.1.2. Target 12.2 Efficient resource management

By 2030, achieve the sustainable management and efficient use of natural resources.

While the indicators mainly include material footprints per capita or on country level, this target has a clear link with the environmental LCA. Several impact categories can be linked: resource use (minerals and metals), climate change (through use of fossil fuels), water deprivation and land use. More efficient management and use of these resources will be captured in the LCA results of these impact categories, and hence is linked to the target.

1.1.3. Target 12.3 and 12.5 Waste reduction

Target 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, including post-harvest losses.

Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Targets 12.3 and 12.5 both deal with waste reduction. Waste is not specifically part of LCA impact assessment methods. Waste reduction is indirectly included in the resulting environmental impact by having a smaller contribution to a multitude of midpoint categories. However, a smaller contribution to any impact category can be caused by many other things besides waste reduction. A direct relation between any particular environmental impact category and waste reduction can therefore not be made.

The following links to social impact categories can be identified:

- Responsible communication: communication that concerns e.g. how to properly store and dispose food, and food shelf life can help to reduce food waste at the consumer (target 12.3). Communication can help to reduce waste through prevention, reduction, recycling and reuse (target 12.5).

Target 12.4 Waste management

Target 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.

The term "waste" is quite broad and can mean many different things, for example production waste, material flows occurring during production in the form of emissions to air, water and soil, and eventually all products become waste at their end of life.

This SDG target deals with the correct handling of waste and reducing the impact of that waste on human health and the environment. This overall effect of material flows on both the natural and human environment is exactly what LCA is trying to capture and is represented in each of the impact categories, with the exception of land use. A reduction in any of these impact categories therefore contributes to this SDG target.

Environmental links:

- All impact categories besides land use

 Links to social impact categories:
- Fair trading relationships: when small-scale entrepreneurs have a better position and understanding of the market, it can help them to anticipate on demand. This can contribute to waste reduction in the supply chain.
- Responsible communication: communication about proper end-of-life handling of other products can also help to increase the sound management of waste.

Target 12.6 Encourage sustainability reporting

Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle

This target it partially linked to social LCA, as the responsible communication topic deals with the public availability with sustainability information, which can be part of the reporting cycle of companies. Responsible communication has a different meaning in a business to business context and in a business to consumer context. Professional buyers in companies are more likely to understand and use sustainability reporting than consumers, who at best look at the claims directory communicated to them; so the link to target 12.6 mainly relates to purchasing in the Business to Business context.

1.1.4. Target 12.7 Promote sustainable public procurement

Promote public procurement practices that are sustainable, in accordance with national policies and priorities

Target 12.7 deals with sustainable public procurement. The social topic responsible communication can play an important role in the development of policies and practices that relate to sustainable public procurement.

1.1.5. Target 12.8 Ensure sustainability awareness and lifestyle

By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

This target is partly covered by the social topic responsible communication. This topic deals with how companies communicate about their product, and the avoidance of sharing misleading

communication. Responsible and publicly available communication about products that consumers buy and use contributes to awareness for sustainability issues.

1.1.6. Overview of links

In figure 12.1,**Error! Reference source not found.** the overview of the links between LCA impact categories and SDG 12 is shown.
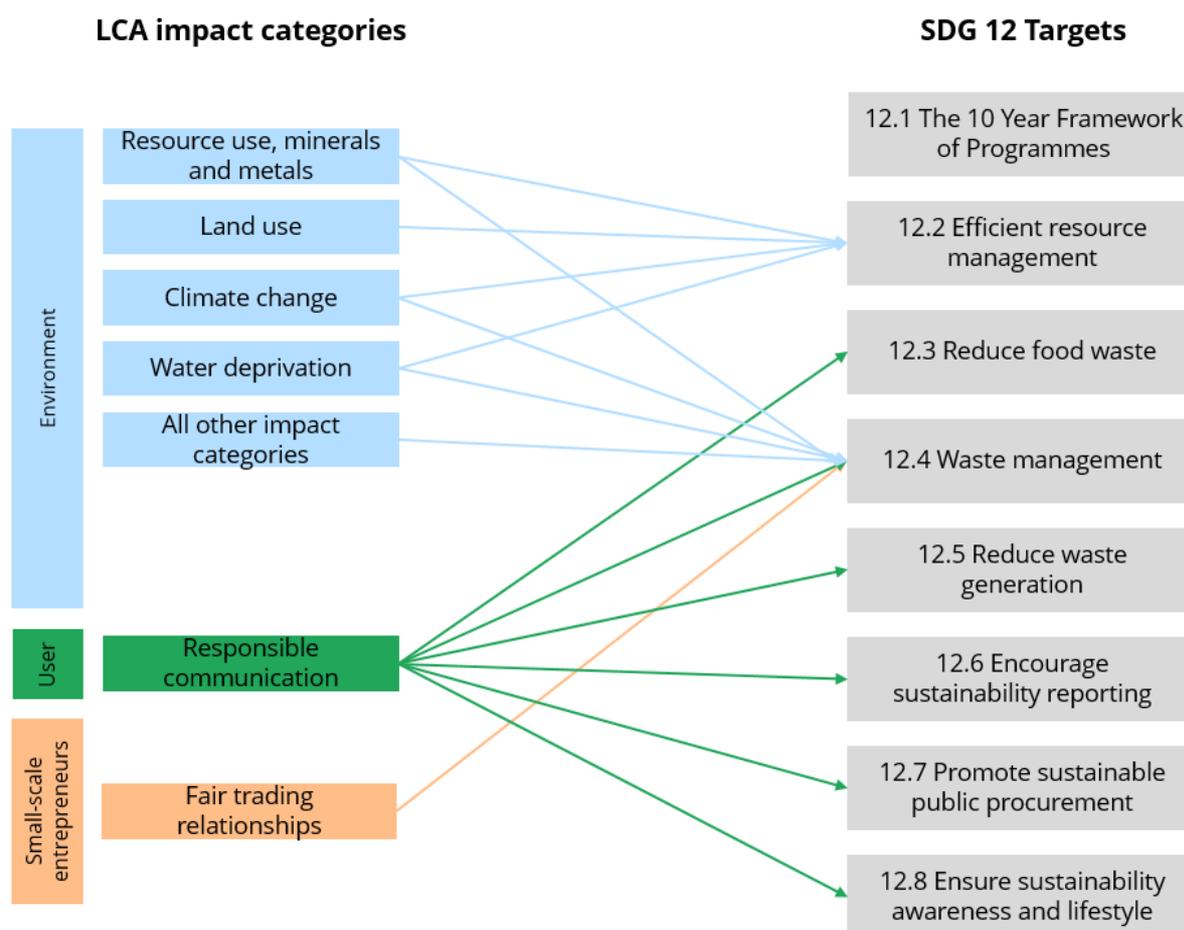

Figure 12.1 Overview of links between LCA impact categories and SDG targets for SDG 12

12.4 Characterizing the relation between LCA and SDG 12

In this paragraph, the nature of the relation between the impact categories and the targets of SDG 12 are defined. This step determines the score needed to qualify as a contribution to a target, per target and impact category. The first section describes how environmental impact category indicator results can be linked; the second section does the same for social metrics.

12.4.1   Environmental LCA

LCA impact category	Rationale	Requirements to be counted as a contribution to SDG 2	
Resource use, minerals and metals	SDG target 12.2 aims to capture efficient use of resources.	**+2**	The environmental impact is a lot lower than the reference product (>10%)
		-2	The environmental impact is a lot higher than the reference product (> 10%)
Climate change	SDG target 12.2 aims to capture efficient use of fossil resources as well, which links to climate change.	**+2**	The environmental impact is a lot lower than the reference product (>10%)
		-2	The environmental impact is a lot higher than the reference product (> 10%)
Water deprivation	SDG target 12.2 aims to capture efficient use of resources.	**+2**	The environmental impact is a lot lower than the reference product (>10%)
		-2	The environmental impact is a lot higher than the reference product (> 10%)
Land use	SDG target 12.2 aims to capture efficient use of resources.	**+2**	The environmental impact is a lot lower than the reference product (>10%)
		-2	The environmental impact is a lot higher than the reference product (> 10%)
All environmental impacts besides land use	SDG target 12.4 deals with waste management and reducing its impact on the environment	**+2**	The environmental impact is a lot lower than the reference product (>10%)
		-2	The environmental impact is a lot higher than the reference product (> 10%)

12.4.2 Social LCA

Stakeholder	Social topics	Rationale	Requirements to be counted as a contribution to SDG 6	
User	Responsible communication	Responsible communication about products can help to reduce food waste (targets 12.3, 12.4, 12.5). Furthermore, it can help to raise consumer awareness and create a more sustainable lifestyle (target 12.8), and it can play an important role in reporting (12.6) and sustainable public procurement (12.7).	+2	Claims are backed up with sufficient evidence, and this information is publically available and easy to access. There is a mechanism in place to engage in dialogue with consumers.
			+1	Communication and labelling is designed to avoid misleading claims, and the claims are substantial and relevant.
			-2	When product are not labelled according to standards, and there are many incidents of irresponsible communication, this is considered as a showstopper for SDG 12.
Small-scale entrepreneurs	Fair trading relationships	Working on a fairer relationship with small-scale entrepreneurs can help them to better anticipate on food demand, and reduce production losses. When there is no specific assessment is conducted (-2 score) this does not have to be a showstopper.	+2	Small-scale entrepreneurs understand standards, price structures, and join collectives to strengthen their position.
			+1	Small-scale entrepreneurs understand standards, price structures, and action is taken to encourage small-scale entrepreneurs join collectives to strengthen their position.

Table 12.3: Social topic linking to SDG 12

12.5 Scoring matrix for SDG 12

Based on the tables above, the following summary can be made as a checklist for determining if the LCA results can support a contribution to SDG 12.

Table 12.4: Scoring matrix for determining whether the LCA results can indeed support SDG 12

	Blocking			Contributing
Target 12.2 Efficient resource management				
Resource use, minerals and metals	-2			+2
Climate change	-2			+2
Water depletion	-2			+2
Land use	-2			+2
Target 12.3 Reduce food waste				
Responsible communication	-2		+1	+2
Target 12.4 Waste management				
All environmental impacts besides land use	-2			+2
Responsible communication	-2		+1	+2
Fair trading relationships			+1	+2
Target 12.5 Reduce waste generation				
Responsible communication	-2		+1	+2
Target 12.6 Encourage sustainability reporting				
Responsible communication	-2		+1	+2
Target 12.7 Promote sustainable public procurement				
Responsible communication	-2		+1	+2
Target 12.8 Ensure sustainability awareness and lifestyle				
Responsible communication	-2		+1	+2

12.6 References

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https://www.unenvironment.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-12

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