

Transforming the IO4 Presentations into a PDF format for the Final e-book

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IO4: Sustainable Development Course

Module 1: Introduction to Sustainable Development

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Learning Outcomes

- To gain knowledge regarding the development of the definition of Sustainable Development and other similar definitions
- To obtain knowledge regarding the UN Sustainable Development Goals and the EU policies' alignment to them
- To learn about various sustainable development models

Course Requirements

- Pen and paper/ computer
- Internet access

Overview

This module will provide useful knowledge and information on the evolution of the definition of sustainable development and different definitions related to the term, as well as the Sustainable Development Goals (SDGs) and the main sustainable models currently used.

The content was based on the survey and interviews conducted with relevant stakeholders for the purpose of this project (for the development of Intellectual Output (IO) 1, as well as the needs analysis conducted for the creation of this course) a need was identified to learn more about what sustainable development entails, how it's linked to the political/regional environment and the international policies and strategies related to it (you can find the IO1 Guide [here](#)).

Keywords

SDGs, sustainable development, sustainability, CSR, sustainable development models

Introduction

The definition of sustainable development evolved dramatically since it first appeared as a term in 1987.

It initially focused on the environment and protecting future generations ([World Commission on Environment and Development, 1987](#)) as defined in the Our Common Future report.

However, its definition expanded covering present sustainable growth in social, financial and environmental facets, as observed in the [UN 2030 Agenda](#) and the [17 Sustainable Development Goals \(SDGs\)](#), the development of concepts such as [Corporate Social Responsibility \(CSR\)](#) and in the different sustainable development models developed over the years such as the [People-Planet-Profit](#) and [Environmental Social Governance \(ESG\) criteria](#), and [the Workplace, Marketplace, Environment and Society/Community](#) models.

Topic 1 – Sustainable Development definitions

A. [Theory \(part 1\)](#)

The term ‘sustainable development’ has initially appeared at the 1972 UN Conference on the Human Environment but was defined and became popular by the World Commission on Environment and Development 1987, Brundtland report, ‘Our Common Future’, as the *‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’*.

Grasping the concept took time (perhaps due to lack of knowledge and system thinking skills, linking other areas with the environment), which is obvious when observing its evolution through time. It now focuses on economic and social development as well as environmental protection and enhancement and encouraging participation from communities, nongovernmental organisations (NGOs) and groups identified by the UN as under-represented in decision-making, based on the [Agenda 21 report](#) (United Nations, 1992) and the [UN 2030 Agenda](#) and the [17 Sustainable Development Goals \(SDGs\)](#).

A. [Theory \(part 2\)](#)

In addition, various terms have emerged which are used interchangeable when referring to sustainable development but have slightly different meanings.

1. **Sustainability:** the ability or capacity of something to be maintained or endure itself in a relatively ongoing way across various domains of life or according to [ISO Guide 82](#) (2014): *“sustainability is the state of the global system, including environmental, social and economic aspects, in which the needs of the present are met without compromising the ability of future generations to meet their own needs”*. **Sustainability is the destination and sustainable development is a means of reaching sustainability.**
2. **Corporate Social Responsibility (CSR):** The [European Commission in its Communication \(COM \(2011\) 681\) on 25 October 2011](#) defined Corporate Social Responsibility (CSR) as *“the responsibility of enterprises for their impacts on society”*

(and therefore their contribution towards sustainable development). Furthermore, ISO has published a detailed guide on Social Responsibility, which stresses the contribution of social responsibility to sustainability. ([ISO,2010](#)).

3. **ESG:** Environmental, Social and Corporate Governance (ESG) criteria are a set of standards for a company's operations that socially conscious investors use to evaluate potential investments ([Investopedia, 2021](#)). More details on ESG will be presented in Topic 3.

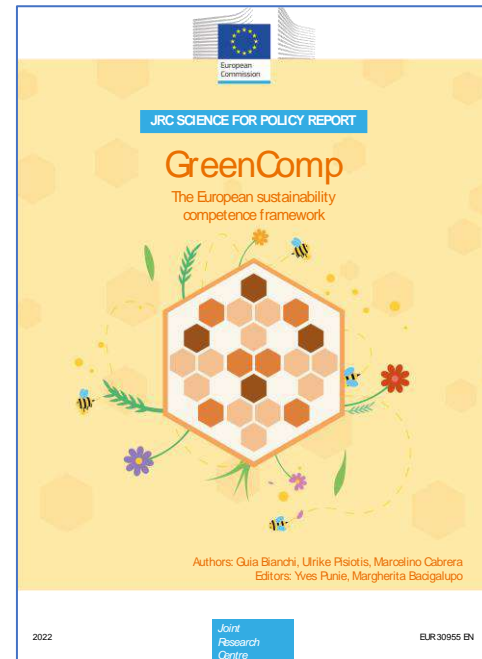
A. Theory (part 3)- The GreenComp framework

2022: a milestone for Systems Thinking in Sustainability

On January 14, 2022, the Joint Research Centre (JRC) of the EU Commission, issued a study with the title:

[GreenComp: the European sustainability competence framework](#)

The aim of the study is to provide a shared competence framework on sustainability at European level as a **common basis to guide both educators and learners, that can work as a catalyst for action to solve the great challenges of our times**



The importance of interdisciplinarity

In another communication, issued and adopted on the same day entitled:

[Proposal for a Council Recommendation on learning for environmental sustainability](#)

The EC also argues that *“interdisciplinary approaches are needed to help learners understand the interconnectedness of economic, social and natural systems.”*



GreenComp can serve a wide range of purposes, including:



CURRICULA
REVIEW



DESIGN OF
TEACHER
EDUCATION
PROGRAMME
S



(SELF-)
ASSESSMENT/
REFLECTION



POLICY
DEVELOPME
NT



CERTIFICATION



ASSESSMENT



MONITORING
AND
EVALUATION

It offers a **common definition of sustainability**, closely connected to the concept of [planetary boundaries](#):

“sustainability means prioritising the needs of all life forms and of the planet by ensuring that human activity does not exceed planetary boundaries”.

It also offers a **definition for sustainability competence**:

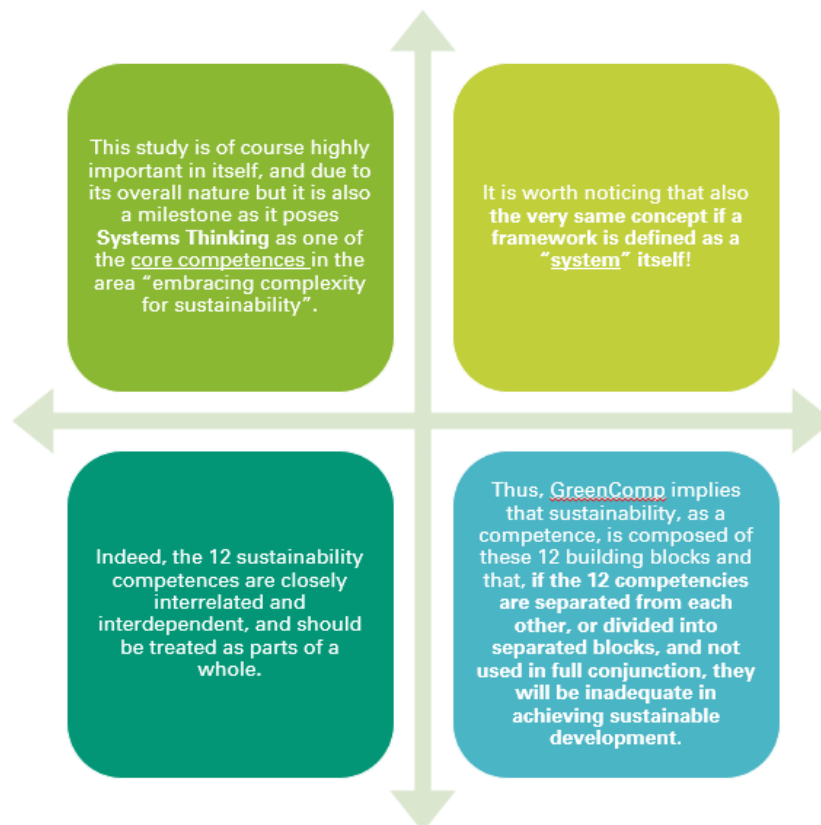
“empowerment of learners to embody sustainability values, and embrace complex systems, in order to take or request action that restores and maintains ecosystem health and enhances justice, generating visions for sustainable futures”.

The Four Competence Areas

In particular, the **GreenComp** study elaborates its main statements around the need to have 12 competences (in bold) organised into four areas, as reported below:

Embodying sustainability values, including:	Embracing complexity in sustainability, including:	Envisioning sustainable futures, including:	Acting for sustainability, including:
<ul style="list-style-type: none"> • valuing sustainability • supporting fairness • promoting nature 	<ul style="list-style-type: none"> • systems thinking • critical thinking • problem framing 	<ul style="list-style-type: none"> • futures literacy • adaptability • exploratory thinking 	<ul style="list-style-type: none"> • political agency • collective action • individual initiative

The GreenComp Framework



The Joint Research Centre (JRC) of the European Commission provided a visualisation inspired by nature to represent the interconnection of the 4 areas and the 12 competences of GreenComp.



Visual representation of GreenComp.

Image taken from https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework/greencomp-conceptual-reference-model_en

B. Case Study

The case study it's a best practice example of a successful Corporate Social Responsibility (CSR) strategy and activities a company can take in order to contribute to the sustainable development of their organisation as well as the society.

Creta Maris Beach Resort CSR activities

Creta Maris Beach Resort is one of the most popular beach resorts in Crete Island, in Greece. During its 40-year lifetime, the main aim of the company is the development of hotel services always considering the environment in which the company develops.

Since 2013, Creta Maris has published 4 annual Sustainability Reports which reflect the company's significant economic, environmental, and social impact.

In terms of the actions that the company takes regarding the environment some examples include the use of solar panels for heating water, electricity replaced with liquid gas in all kitchens and main laundry areas and the incandescent and economy lamps gradually replaced by LED lamps.

Regarding the society pillar, amongst other initiatives the company takes, almost half of the company's workforce are locals, thus supporting the local economy and since 1992 Creta Maris has established a volunteer blood donor bank at Venizelio Pananneio Hospital of Heraklion and the blood donation takes place annually.

When it comes to the workplace environment, some of the company's CSR activities include equal opportunities with its staff divided equally to male and female and with the majority of employees being Cretan or living permanently in Crete. Moreover, employees are given the opportunity to attend educational seminars either to enhance their existing knowledge and skills, or to develop new ones.

Finally, regarding the marketplace, activities include providing excellent facilities to its customers young and old. Therefore, in Creta Maris there are 6 children's pools, wellness center, spa, convention center etc. Additionally, their restaurant staff uses organic products, with many of them produced by the hotel (ROAD-CSR consortium, 2017).

Reflection question: What actions does your organisation/organisation you work for take in terms of Corporate Social Responsibility?

C. Video

As mentioned on the theory part, ESG refers to a set of environmental, social and governance standards for a company's operations that socially conscious investors use to evaluate potential investments. The following video gives more information on ESG. More information on ESG will be presented in topic 3.

ESG Investing

Watch the video below and answer the following question:

- *What are ESG metrics and why are they important?*

<https://www.youtube.com/watch?v=4LPRQaG83Ls>

C. Video (answer)

ESG Investing

Watch the video below and answer the following questions:

- *What are ESG metrics and why are they useful?*

Sample answer: ESG is a framework for analysing companies and assessing how they compare with their peers regarding the Environment (e.g. water and waste production etc), Society/Social issues (how they treat clients and employees etc) and Governance (share class structure, governance structure etc).

They are useful because they can help investors avoid bad companies and find quality in a company.

<https://www.youtube.com/watch?v=4LPRQaG83Ls>

D. Learning activity

Write a brief definition of the terms below, based on what you learned in this section.

1. ESG
2. Sustainability
3. Sustainable Development
4. CSR

D. Learning activity (answers)

Write a brief definition of the terms below, based on what you learned on this section.

1. **ESG:** Environmental, Social and Corporate Governance (ESG) criteria are a set of standards for a company's operations that socially conscious investors use to evaluate potential investments.
2. **Sustainability:** the ability or capacity of something to be maintained or endure itself in a relatively ongoing way across various domains of life. Sustainability is the destination and sustainable development is a means of reaching sustainability.
3. **Sustainable Development:** development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
4. **CSR:** Corporate Social Responsibility is the responsibility of enterprises for their impacts on society.

E. Hints/Tips

- It's important to remember that sustainability doesn't only include the environment.

F. Conclusion

Although the term 'sustainable development' originally was understood as only referred to the environment, it's now a broader term which includes the society and economy as well as the environment.

There are a few terms which are used interchangeably for sustainable development such as sustainability, ESG (Environment, Society and Governance metrics) and CSR (Corporate Social Responsibility), as described in more detail in this section, but have slightly different meanings.

Topic 2- Sustainability Development Goals (SDGs)

A. Theory

On 25 September 2015, the 193 countries of the UN General Assembly adopted the 2030 Agenda for Sustainable Development, “ a plan of action for people, planet and prosperity” and a “ a blueprint to achieve a better and more sustainable future for all”, (UN, 2015).

On the Agenda, 17 Sustainable Development interlinked Goals, 169 targets and 232 indicators were set, which related to critical for the humanity and the planet areas, namely people, planet, prosperity, peace and partnership, covering the three main dimensions of sustainable development: the economic, social and environmental.

The goals are intended to be achieved by 2030.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all whilst tackling climate change and working to preserve our oceans and forests.

The 17 Sustainable Development Goals



Image is taken from: <https://www.un.org/sustainabledevelopment/news/communications-material/>

- The High-level Political Forum on Sustainable Development serves as the central UN platform for the follow-up and review of the SDGs.
- The Division for Sustainable Development Goals (DSDG) in the United Nations Department of Economic and Social Affairs (UNDESA) acts as the Secretariat for the SDGs, providing substantive support and capacity-building for the goals and their related thematic issues, including water, energy, climate, oceans, urbanization, transport, science and technology, the Global Sustainable Development Report (GSDR), partnerships and Small Island Developing States. DSDG plays a key role in the evaluation of UN systemwide implementation of the 2030 Agenda and on advocacy and outreach activities relating to the SDGs.
- The High-level Political Forum on Sustainable Development serves as the central UN platform for the follow-up and review of the SDGs.
- The Division for Sustainable Development Goals (DSDG) in the United Nations Department of Economic and Social Affairs (UNDESA) acts as the Secretariat for the SDGs, providing substantive support and capacity-building for the goals and their related thematic issues, including water, energy, climate, oceans, urbanization, transport, science and technology, the Global Sustainable Development Report (GSDR), partnerships and Small Island Developing States. DSDG plays a key role in the evaluation of UN systemwide implementation of the 2030 Agenda and on advocacy and outreach activities relating to the SDGs.
- The European Union and the United Nations have combined their efforts in order to shape a more sustainable, safer and better world for all – SDGs

“Sustainable development has since long been at the heart of the European project”
([COM\(2016\) 739 final](#))

Sustainability Development Goals (SDGs)



The following European Commission pages describe how the EU has aligned their policies to the SDGs in more detail:

- a. <https://knowsdgs.jrc.ec.europa.eu/policy-mapping>
- b. <https://knowsdgs.jrc.ec.europa.eu/policies-sdgs>

EU's 'Whole-of-Government approach' in implementing the Sustainable Development Goals



Image taken from https://ec.europa.eu/info/strategy/international-strategies/sustainable-development-goals/eu-holistic-approach-sustainable-development_en

SDGs are not only a priority at a national and international level but also in the economy. More and more businesses are in the process, or they have already aligned their CSR and business strategies to the 17 SDGs. Below is an example of a company which has successfully integrated SDGs in the core of their business.

B. Case Study: KPMG Case Study: Safaricom Limited

Safaricom Limited is the largest mobile operator in Kenya and it serves more than 23 million customers, more than two thirds of the Kenyan market.

Although as a company it realised its role in delivering the 2030 agenda, integrating the 17 goals (and 169 targets) was not an easy task as it depended on the degree to which the team could illustrate clearly the business value that adopting an SDG approach will create.

KPMG carried an assessment in 2015 using KPMG's True Value methodology, which demonstrated the great impact Safaricom has on the Kenyan economy, society and environment. The company wished to do more though, as it takes its commitment to sustainability seriously and to do that, they employed KPMG in order to assist them integrate the values *that drive sustainability at the core of every business decision*.

In order to incorporate SDGs into their business, the task team followed a 'top-down, bottom-up co-creation approach', engaging with all levels of the company in parallel, first discussing business objectives and improvement areas and how SDGs can assist in enhancing performance and overcoming challenges and keep a flexible approach, allowing as many iterations as necessary until relevant SDGs are fit for purpose.

Through consultation, the company developed a narrative and purpose statement for its commitment to sustainability that fit their organisational strategy:

Through consultation, the company developed a narrative and purpose statement for its commitment to sustainability that fit their organisational strategy. The sentences on the top of the image below are parts of their mission statement and below it are the SDGs they correspond to.



Image is taken from: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2016/08/safaricom-sdg-case-study.pdf>

Some of the elements of the approach that Safaricom Limited has taken in order to understand the importance of integrating the SDGs into their core business included the following:



Image is taken from: <https://assets.kpmg/content/dam/kpmg/xx/pdf/2016/08/safaricom-sdg-case-study.pdf>

You can find out more about this case study here:

<https://assets.kpmg/content/dam/kpmg/xx/pdf/2016/08/safaricom-sdg-case-study.pdf>

Reflection question: Has your organisation/the organisation you work for adopted any SDG sustainability approaches and if yes, how did it incorporate them into their core business?

C. Video

The following video is a TedX talk by Social progress expert Michael Green about the SDGs.

Watch the video below and answer the following question:

- What can we do to make the world a better place by 2030, according to social progress expert, Michael Green?

<https://www.youtube.com/watch?v=o08ykAqLOxk>

C. Video (answer)

- Answer: Check transcript here <https://pressbooks.howardcc.edu/essentials/chapter/fa21-transcript-how-to-make-the-world-a-better-place-by-2030/> (the main conclusion is that we cannot achieve the Sustainable Development Goals by using business as usual. We need radical change and there are a few tools to help us with that e.g., Social Progress Index).

D. Learning activity

Find out your country's performance for each SDG (you can find that information here <https://dashboards.sdgindex.org/profiles>) and answer the following questions:

- How's your country performing? How many and which goals has it achieved and which goals is it still far away from achieving?
- How can you/your company help achieve the SDGs your country still needs to improve on?

E. Hints/Tips

- Try to incorporate the 17 SDGs into your business sustainability strategy, your everyday work and the organisation's objectives.

F. Conclusion

The Sustainable Development Goals, adopted by the UN Assembly in 2015, are in the heart of the UN 2030 agenda. Although not all goals may be achieved by then, it's a useful approach when it comes to adopting a sustainability strategy for your business as it can be comparable and measurable.

Topic 3- Sustainability Models

A. Theory

There are various approaches and frameworks which are used to assess and measure sustainability and below are presented three of the most common ones.

1. People, planet, profit

The people –planet- profit model, also known as the three Ps of Sustainability or the Triple Bottom Line, is a sustainability framework first articulated by Freer Spreckley in 1981, in which he proposed that the most critical categories to measure in a social audit in order to assess the value of an organisation to the society are **social, environmental and economic benefits**.

During the 1990s, the British business author and entrepreneur John Elkington popularised the phrases ‘Tripple Bottom Line’ and ‘People, Profit, Planet’.

Below is a brief description of the Triple Bottom Line model:

- People

The positive and negative impact of the organisation on its most important stakeholders (employees, customers, families, communities and any other individual which influences, or it is affected by the organisation. Relevant practices may include equal opportunities, staff well-being, professional education and training etc.

- Planet

The positive and negative impact of the organisation on its natural environment. Relevant practices may include reduction of the company’s carbon footprint, usage of natural resources, removal of waste, reforestation and restoration of natural harm done.

- Profit

The positive and negative impact of an organisation on the local, national and international economy. Relevant practices may include creating employment, generating innovation, paying taxes, wealth creation and any other economic impact.

(Kraaijenbrink, 2019)

2. Environmental, Social and Corporate Governance (ESG) criteria

The term Environmental, Social and Corporate Governance (ESG) first appeared in the [2005 financial study "Who Cares Wins."](#) The report developed guidelines and recommendations on how to better integrate environmental, social and governance (ESG) issues in asset management, securities brokerage services and associated research functions.



Image taken from:
<https://bilarab1.wordpress.com/2017/02/25/the-bottom-line-how-can-people-help-the-planet-profit/>

The ESG criteria it's a number of criteria that investors who are socially responsible or companies which would like to adopt a more ESG-friendly approach may take into consideration.

An example of environmental, Social and Corporate Governance (ESG) criteria



Image taken from: <https://www.hseinternational.com/news-insights/2021/4/environmental-social-and-corporate-governance-esg-influence-continues-to-grow>

3. One of the most popular models used for CSR and its contribution to sustainability is one that identifies responsibilities of companies in regard to the environment, workplace, marketplace and society.



Image taken from <https://medium.com/@JenniqueConsulting/the-csr-strategy-b078536d9f27>

3. Responsibility towards the Environment, Workplace, Marketplace and Society

Below is a list of responsibilities under each pillar. The majority of these are related to sustainable development (economic, environmental and social).



Image taken from <https://slideplayer.com/slide/6922680/>

B. Case Study

The following case study is the CSR strategy of Accenture, a leading global professional services company which adopted the fourfold CSR model of workplace, marketplace, environment, and society/community.

Read the case study here <http://www.csrhub.ie/csr-case-studies/v3-for-download-accenture-case-study.pdf> and answer the following questions:

1. What actions has Accenture taken related to:
 - Workplace
 - Marketplace
 - Environment
 - Society/Community?
2. How did they incorporate the SDGs into their CSR strategy?

C. Video

The following video is a discussion of two business professional discussing the implementation of sustainability strategies. Watch the video and answer the following question:

- What do BCG Senior Partners Wendy Woods and David Young advise companies to do in order to implement sustainable business models?

<https://www.youtube.com/watch?v=Cw5QYwhhog8>

C. Video (answer):

Possible answer: Adopt new mindsets, re-imagine corporate strategy, product innovation, service innovation, use SDGs, adopt a systemic approach, bring societal benefits to local community etc.

D. Learning activity

What actions do your company/a company (if student) should take in order to improve sustainability in the following areas:

- Marketplace
- Workplace
- Environment
- Society

E. Hints/Tips

- Adopting a sustainable development model should be part of a company's strategy and objectives and should be fully incorporated into their practices.

F. Conclusion

- There are various sustainability models currently used in the corporate world, some focus on the three pillars of sustainability (Triple Bottom Line, ESG) whilst others use a slightly different approach (Marketplace, Workplace, Environment, Society/Community) but they all emphasise the importance of incorporating sustainability into the core business of a company.

9. Conclusions

There are various similar terms that refer to sustainability and are often used interchangeably (sustainable development, ESG, CSR etc) but they don't all share the same meaning.

Furthermore, the Sustainable Development Goals (SDGs), set by the UN in 2015, are becoming more and more common when it comes to measuring sustainability as an organisation, as all countries in the world work towards achieving those goals by 2030.

Finally, there are a few models used regarding sustainable development (Triple Bottom Line, ESG, Marketplace, Workplace, Society/Community, Environment) which they all emphasise the importance of incorporating sustainability into the core of a business.

10. Quiz

Question 1: What is the definition of ‘sustainable development’?

- A. The ability or capacity of something to be maintained or endure itself in a relatively ongoing way across various domains of life.
- B. The development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- C. The responsibility of enterprises for their impacts on society.

Question 2: What is Corporate Social Responsibility (CSR)?

- A. The ability or capacity of something to be maintained or endure itself in a relatively ongoing way across various domains of life.
- B. The development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- C. The responsibility of enterprises for their impacts on society.

Question 3: What does ESG stand for?

- A. Environmental, Social, Governance
- B. Environmental, Sociological, Geographical
- C. Environmental, Social, Geological

Question 4: How many Sustainable Development Goals are there?

- A. 12
- B. 17
- C. 25

Question 5: What are three of the main sustainable models used?

- A. CSR, ESG, SDGs
- B. CSR, People-Profit-Planet, ESG
- C. People-Profit-Planet, ESG and Marketplace, Workplace, Environment and Society/Community

10. Quiz (answers)

Question 1: What is the definition of ‘sustainable development’?

A. The ability or capacity of something to be maintained or endure itself in a relatively ongoing way across various domains of life.

B. The development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

C. The responsibility of enterprises for their impacts on society.

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C. Environmental, Social, Geological

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A. 12

B. 17

C. 25

Question 5: What are three of the main sustainable models used?

A. CSR, ESG, SDGs

B. CSR, People-Profit-Planet, ESG

C. People-Profit-Planet, ESG and Marketplace, Workplace, Environment and Society/Community

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Module 2: Sustainable Development and Systems Thinking

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1. Learning Outcomes

- To gain an understanding about systems thinking.
- To gain knowledge about the connection between systems thinking and sustainable development.
- To understand how systems thinking can be applied in sustainable development.

2. Course requirements

- Pen and paper/ computer
- Internet access

3. Overview

The importance and potential benefits of adopting a systems thinking approach in sustainable development were highlighted in the responses of the survey and interviews conducted with relevant stakeholders for the purpose of this project (for the development of the Intellectual Output (IO) 1 guide as well as the needs analysis for the creation of this course. You can find the IO1 Guide [here](#)).

Therefore, this module will first give a brief overview of what systems thinking is, how it can be used in sustainability issues and finally real life applications of a systems thinking approach in sustainable development will be presented.

4. Keywords

Systems thinking, systems dynamics, sustainable development, sustainability

5. Introduction

As the importance of [sustainable development is becoming more and more obvious for the survival of the planet not only in terms of the environment but also the society, and the economy](#), adopting a systems thinking approach (a holistic approach of exploring and taking actions by looking at a problem or a situation as connected rather than separate parts) can assist in better understanding the complexity of sustainable development issues and provide a useful framework on how to develop and implement sustainable development initiatives or make relevant decisions at an organisation.

You can find out more about systems thinking and systems thinking applications on the Systems Thinking Course ([add link here](#)).

A systems thinking approach has been already applied into various different fields including digital transformation. You can find out more about this topic on the course we developed (see Course about Digital Transformation- [add link here](#)).

6. Topic 1- Sustainable Development and Systems Thinking

A. Theory

1. Systems thinking

The concept of systems thinking was developed in the mid-1950s by Professor Jay W. Forrester at the Massachusetts Institute of Technology, when he applied his knowledge and expertise in feedback control systems and management to assist General Electric Managers [understand why the employment at their Kentucky appliance plants exhibited a three-year cycle \(Barlas, 2009\)](#).

[Professor Forrester](#) created hand simulations of the stock-flow-feedback structure of the GE plants, which included the existing corporate decision-making structure for hiring and layoffs and by doing that he demonstrated how the instability in GE employment was due to the internal structure of the firm and not to an external force such as the business cycle. These hand simulations were the beginning of the field of system dynamics.

The first definition of the term came from American Systems Scientist Barry Richmond, in 1987 ([Richmond, 1991](#)), who defined systems thinking as “*the art and science of making reliable inferences about behavior by developing an increasingly deep understanding of underlying structure*”.

Since then, the term ‘systems thinking’ has been defined and re-defined in many different ways but what’s important is that a systems thinking approach should include three different parts: elements (in this case, characteristics), interconnections (the way these characteristics relate to and/or feed back into each other), and a function or purpose ([Meadows, 2008](#)).

2. Systems thinking and sustainable development

Achieving sustainable development is not a simple task. It requires a multi-level, multi-disciplined approach ([Barile et al, 2018](#)). and that’s where systems thinking can be of great assistance.

Systems thinking involves stakeholders in order to understand cause and effect relationships for actions and goals. It can be used to explore complex problems and make decisions about management issues with a range of stakeholders ([Turner et al. 2016](#)). In addition, incorporating research from a variety of different disciplines into the implementation of SDGs can provide a better understanding on elements required for change in environmental, economic and social conditions (Sanneh, 2018).

For example, implementing the sustainable development goals (SDGs) adopted at the UN

Summit in September 2015 specifically invites the creation of “an integrated, holistic, multi-stakeholder approach” ([Filho, 2017](#)).

B. Case Study

The following case study showcases an example of using systems thinking in sustainability initiatives.

EXCEPT Integrated Sustainability BV is a Dutch sustainability consultancy and design office, which developed the Symbiosis in Development (SiD) method and framework, based on a systems thinking approach (<http://thinksid.org/>).

One of the projects the consultancy worked on was with LC packaging, a worldwide packaging company which wished to assess its baseline sustainability performance.

This company wanted to minimise their operations' impact on the environment and therefore requested EXCEPT to first establish baselines for energy and water use, waste generation and CO2 emissions. Based on their findings, improvement goals were set and integrated in the LC Packaging Sustainability Vision 2022.

Task: Read the LC Packaging Sustainability Vision 22 here https://media.lcpackaging.com/documents/LC_Packaging_Sustainability_Vision.pdf and discuss how the different sustainability goals of LC Packaging can relate to each other.

C. Video

The video below is an example of implementing a systems thinking approach to project management ([Association For Project Management, 2018](#)), which can [contribute to the sustainable development of an organisation](#).

Watch the video below and answer the following question:

What were the benefits of taking a systems approach on this NHS project?

https://www.youtube.com/watch?v=BE34Gu_swXQ&t=2757s

C. Video (answer)

Project Outcome

- Delivered in 6 months, not 12, within budget
- Met functional requirements
- Exceeded performance requirements
- Website flexibility transformed
 - From 5 symptom checkers to 44 in 6 months
 - Content updating at will by editorial team

D. Learning activity

Read the following article about the practical applications of systems thinking to business ([Monat et al., 2020](#)) and answer the following question:

What are the basic principles for applying systems thinking in a business?

<https://www.mdpi.com/2079-8954/8/2/14/html>

D. Learning activity (answers)

The basic principles are:

- Design and sell user experience systems, not products or services; (products are not just products, they are components of user experience systems that involve the product's acquisition, delivery, packaging, use, support, maintenance, environment, disposal, and the product itself).
- Expose, understand, and develop shared mental models/paradigms; (It is important to understand one's mental models and expose them to scrutiny, as well as others within (and outside of) the company. When business Key Performance Indicators do not meet expectations, managers should review their own mental models to see if they require modification. It is sometimes beneficial to have the management team sit together for the express purpose of reviewing corporate mental models)
- Address structure and unintended consequences by identifying *feedback* in the workplace; (s. Although it is probably impossible to prevent ALL unintended consequences of business decisions, it should be possible to minimize them by understanding the systemic structures (specifically the feedback loops) that cause them.)
- Optimize the Goals-Behaviors-Metrics-Rewards system (One of the strongest systems thinking structures in any company is the Goals-Behaviors-Metrics-Rewards (GBMR) system, which is fundamentally a feedback system that positively reinforces employees for desirable behavior and negatively reinforces them for undesirable behavior. This system attempts to establish goals for employees and reward them for achieving those goals; ostensibly if all employees achieve their goals, the company will prosper. But many companies execute this poorly)

E. Hints/Tips

- A systemic approach when attempting to solve a problem or implement an initiative is always beneficial.

F. Conclusion

- A systems thinking approach not only can benefit business operations in general when solving complex problems (e.g. [the Video, slide 11](#)), but it can also assist in tackling sustainability issues (e.g. [Case Study, slide 10](#))

Topic 2- Sustainability Development and Systems thinking applications- SDGs

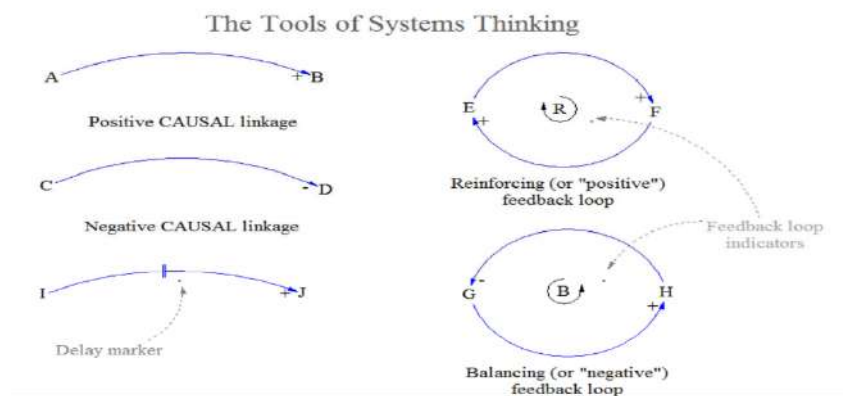
A. Theory

Systems thinking has already been incorporated into the integration and implementation of the 17 UN Sustainable Development Goals (SDGs) in various ways.

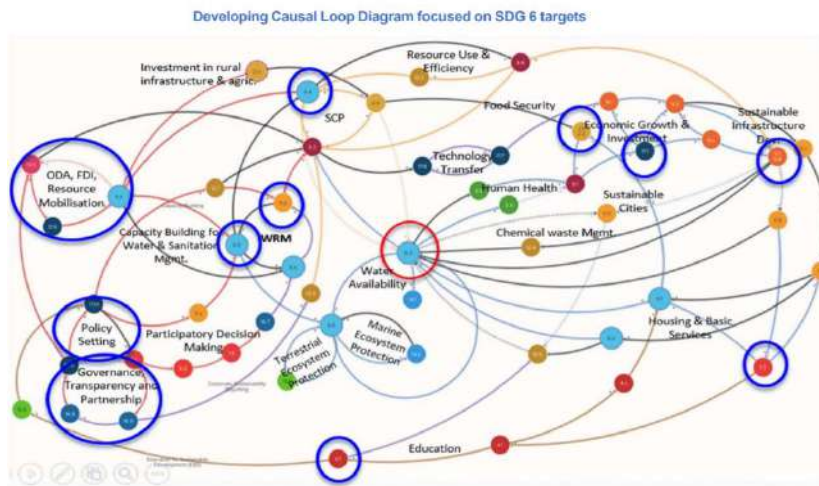
To begin with, the importance of applying a systems thinking approach has already been recognised by the UN, as such an approach acknowledges the strong linkages between the 17 SDGs and introduces the concept of a leverage point, where actions can cause a network of changes influencing several of SDGs simultaneously ([UN ESCAP et al, 2018](#)). Furthermore, the UN resolution of the 2030 Agenda states that “the 17 SDGs are integrated and indivisible”, which again stresses the importance of taking a systems thinking approach.

Systems thinking “allows practitioners to visualize how improvement in one area of the system can either positively or adversely affect another area of the system, and how to turn trade-offs into opportunities for the benefit of the entire system while reducing the possibility of producing unintended responses and consequences. The systems framework allows policymakers and stakeholders to shift from a conventional, siloed and linear policy and decision-making approach towards integrated planning scenarios.” ([SDG Helpdesk, 2020](#))

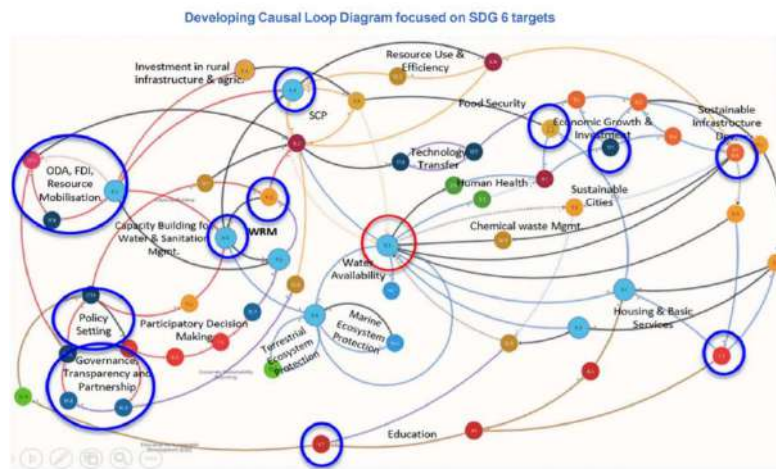
The use of systems thinking tools such as the mapping of a system using feedback loops, and understanding the causality relationship between different elements, can assist in the development of a useful and practical model for each SDG (as well as the interlinkages between SDGs). <https://sdghelpdesk.unescap.org/sustainability-outlook-tool>. Below is a visual representation of the main system thinking tools.



For example, SDG 6: Clean water and sanitation for all looks like this:



Each area e.g. Housing and Basic Services, Food Security etc are sub-targets of Target 6 and the lines between them represent the relationship between each of these (either positively or negatively (e.g. water availability affects human health positively, the more the water availability the better the human health)).



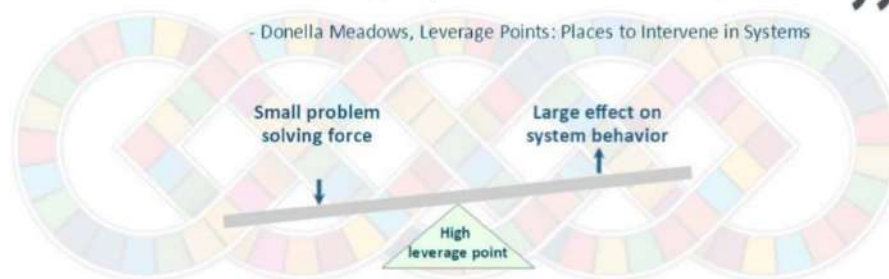
As briefly mentioned above, SDGs directly relate to each other and it's important to take into account the interlinkages between them.

On a series of sessions produced by [UNESCAP \(2019\)](#), there are examples of the relationships between SDGS e.g. [slide 39 here](#) demonstrates how SDG 5- Gender Equality interlinks with every other SDG.

These sessions is a great start on how to use systems thinking into the SDGs.

In addition, as mentioned above, the identification of leverage points is vital. [Meadows \(2022\)](#) provided a great definition of leverage points:

“ Leverage points are “places to intervene in a complex system...” – be it a company, an economy, a living body, a city, an ecosystem, or even a galaxy for that matter – “...where a small shift in one thing can produce big changes in everything.” They are, therefore, of immense interest to anyone seeking to affect change within our interconnected ecological, social and economic systems. ”



Images taken from https://www.unescap.org/sites/default/files/Session%20%20-%20Introduction%20to%20Systems%20Thinking_Tools_final.pdf

Furthermore, the Environment and Development Division (EDD) of the United Nations Social and Economic Commission for Asia and the Pacific (UNESCAP), in consultation with policymakers of Mongolia developed a methodology of Ten Steps, a participatory [Systems Thinking Tool in order to support country planning \(SDG Helpdesk, 2020\)](#). These steps could be applied in cycles, starting a step, relevant to the particular national and local (for example, in cities) circumstances, following the rest of the steps and starting again.

The main elements of the participatory Systems Thinking Tool are:

- (a) creation of a system diagram;
- (b) identifying key causal feedback loops for each system diagram and the list of leverage points of multiple impacts;
- (c) defining the quantitative modelling based on real data, which takes into account causal effects; and
- (d) re-envisioning the systems model for each area specific to a particular time frame.

The Ten Steps tool



Image taken from <https://sdghelpdesk.unescap.org/sustainability-outlook-tool>

B. Case Study

The case study below demonstrates the practical application of systems thinking in Sustainable Development and more specifically in SDGs.

The Sustainable Development Analysis Grid (GADD) was developed with the aim to provide direction to sustainable development policies, strategies, programmes or projects (PSPPs), in order to address their weaknesses and/or assess their progress (Riffon et al, 2016).

It is a systematic analysis tool based on six dimensions (ethical, ecological, social, economic, cultural and governance) and it assesses the extent to which PSPPs promote the improvement of human conditions through real action.

Each dimension corresponds to specific principles and seeks to address specific needs and different topics are under each dimension, but they are all interlinked. See list of topics on the figure.

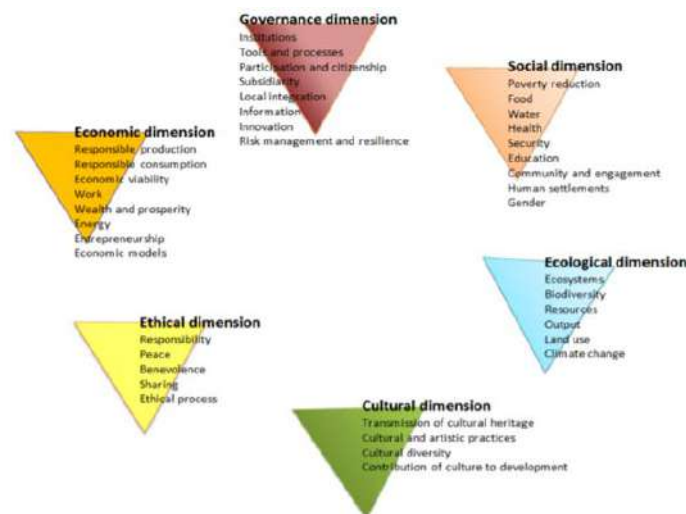


Figure 2 The 40 GADD themes

The grid was adapted to the SDGs by the Institut de la Francophonie pour le développement durable (IFDD), a subsidiary body of the OIF, and UQAC's Chair on Eco-advising and it can be used at all stages of the management cycle.

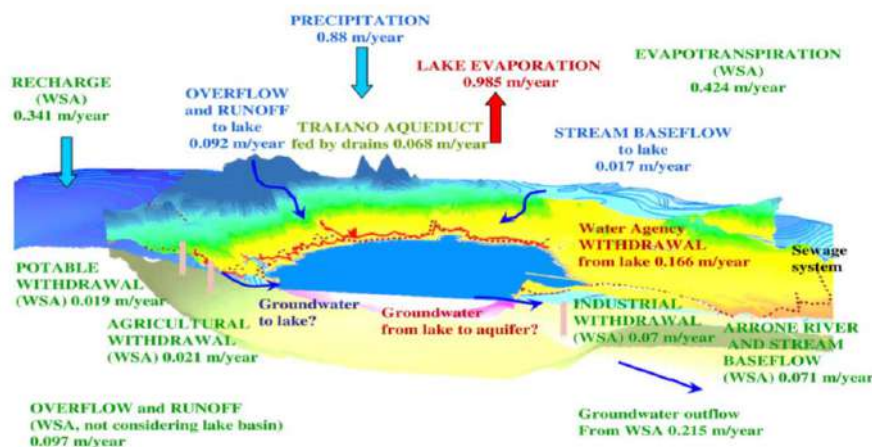
Reflection question: Which stage of the management cycle (see image below) does your job role fall under? Can you think of any sustainability initiatives related to that stage for your business?

B. Case Study 2

This case study refers to a situation at a Bracciano lake, a lake of volcanic origin in the Italian region of Lazio, 32 km (20 mi) northwest of Rome in 2017.

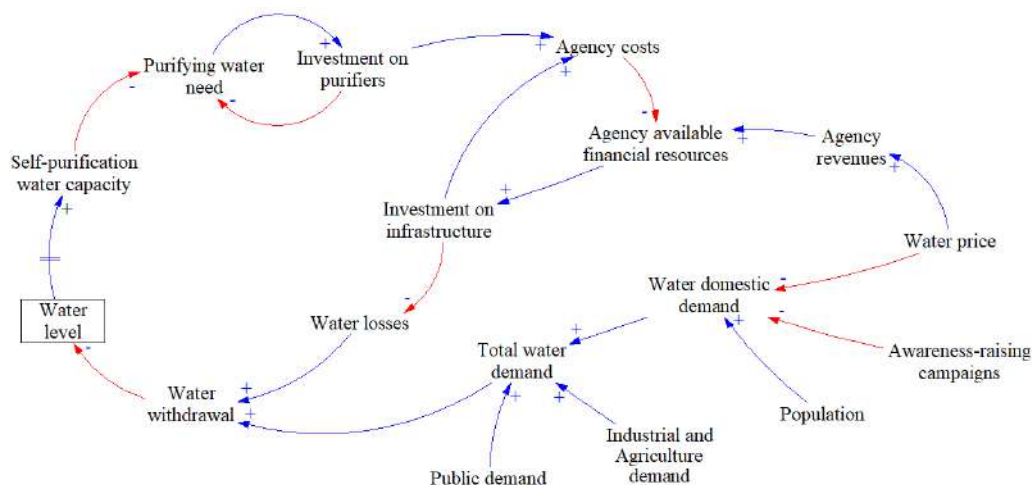
During that year in Italy the decrease of rainfall index was 47.4% when compared to the historical average. 2/3 of the crops along the Italian peninsula were dry. The damages caused to the plantation and livestock amounted to more than 2 billion of Euros.

The lake has suffered a severe drought, which has endangered the biodiversity and bio-equilibrium of the surrounding area.



Water budget components of the lake (Taviani & Henriksen, 2015).

Systems Thinking analysis through a Causal Loop Diagram

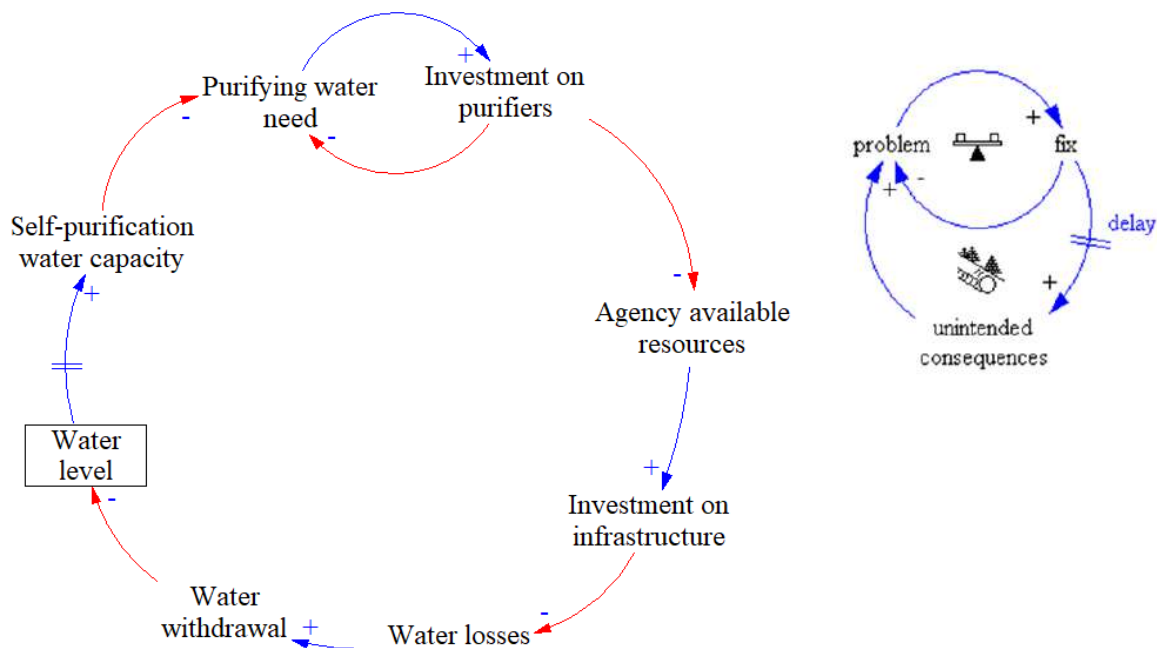


Systems Thinking analysis through a Causal Loop Diagram

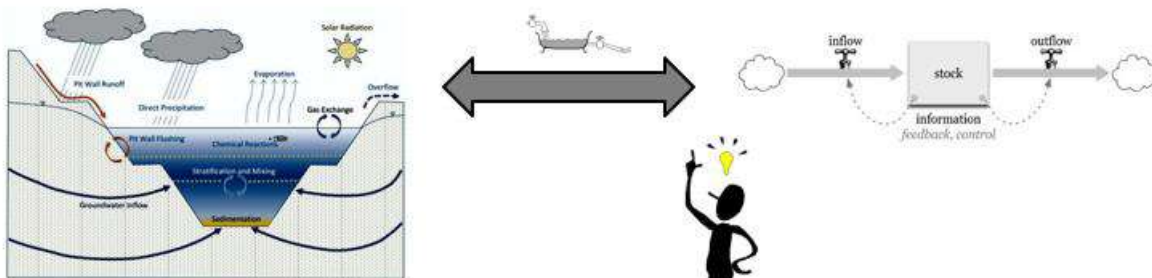
FIXES THAT FAIL

A fix, effective in the short term, has unforeseen long-term consequences which may require even more use of the same fix.

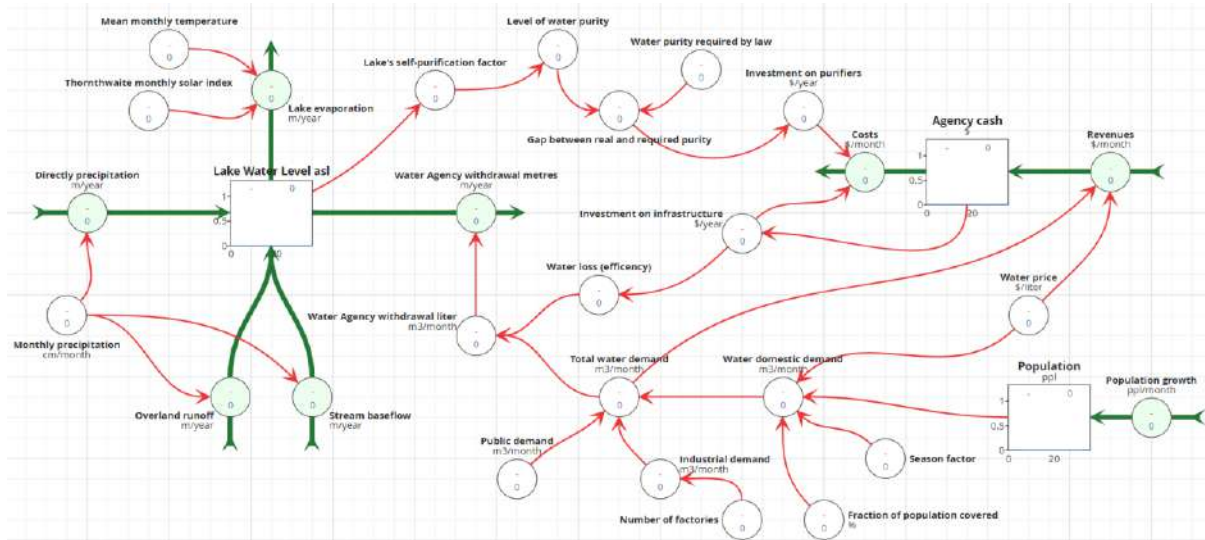
The need for pure water pushes agency to invest in purifiers, but this movement of economic resources on only purifying assets worsens the problem of self-purification capability of the lake, because the infrastructure is not properly maintained.



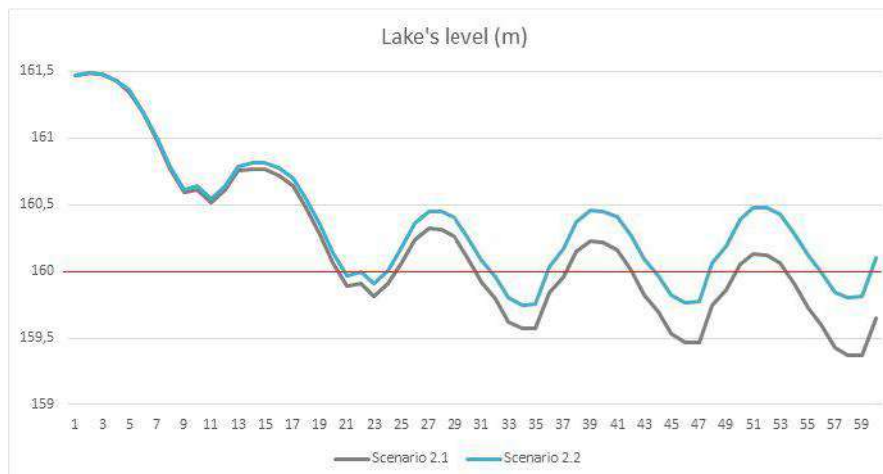
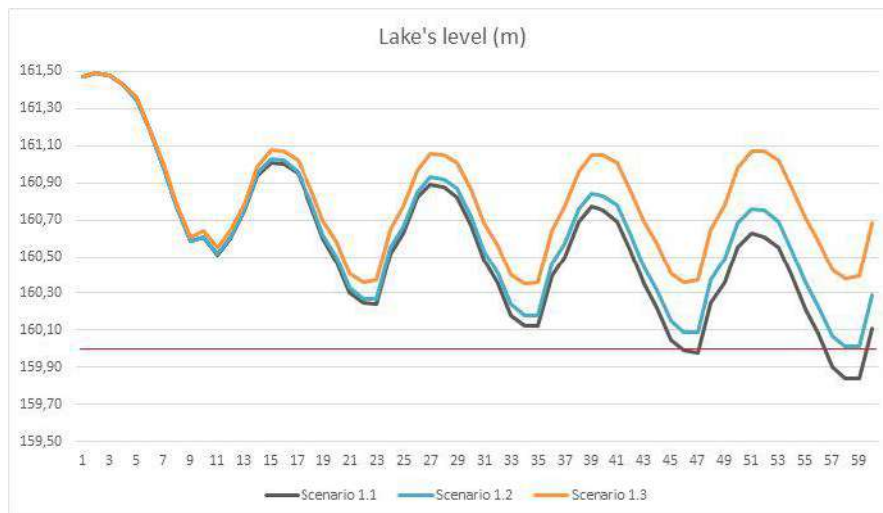
From a hydrological model to a Systems Dynamics (SD) model



From a hydrological model to an SD model



Scenario analysis based on one- (1.x) or two-years (2.x) drought hypothesis; higher infrastructure investment (1.2 & 2.1); dynamic pricing of water consumption (1.3 & 2.2) *red line=hydrometric zero*



Conclusions from the Bracciano Lake case

- The delay of investment on infrastructure, due to the need of water purifying (with investment on purifiers), makes the problem of water level even worse over time.
- Potential solutions may be price policies and awareness-raising campaigns, in order to lead and «control» domestic demand, especially during dry seasons.

A systemic model helps in the evaluation of the long-term impact of past policies and new policies that are currently under consideration, through:

- forecasting
- scenario analysis
- stress tests

C. Video

In the video below, the CEO of the Australian Council for International Development (ACFID) discusses the application of systems thinking to the implementation of the SDGs.

Reflection question: What did you learn about systems thinking and SDGs from the video?

<https://www.youtube.com/watch?v=GuDtqEQX-dQ>

D. Learning activity

Make a list of sustainability issues your company/the company you work for can take actions on, based on the Sustainable Development Analysis Grid.

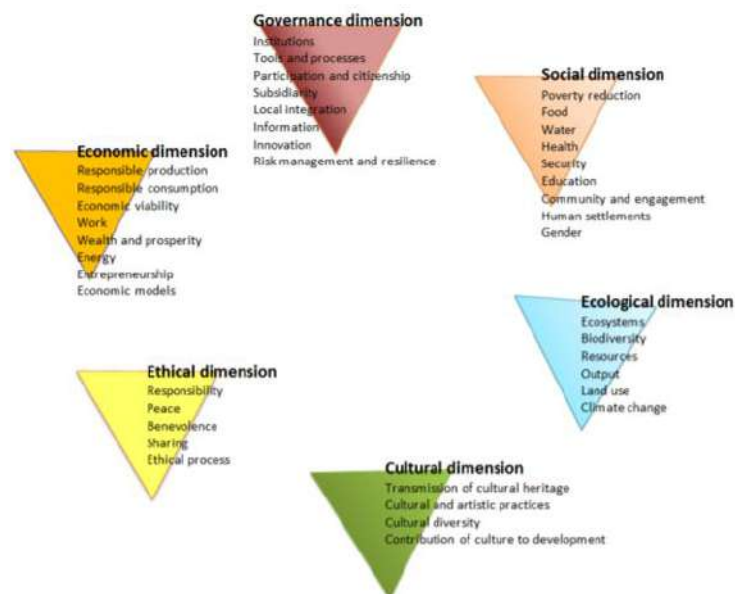


Figure 2 The 40 GADD themes

E. Hints/Tips

Take into account the interlinkages between SDGs and identify important leverage points in achieving each goal when incorporating them into your sustainability strategy.

F. Conclusion

A systems thinking approach plays an integral role in adopting, implementing and assessing the implementation and progress of Sustainable Development Goals, a fact that has already been recognised at international and national level in policymaking by the UN, but it's also now applied at a local level by business which wish to incorporate SDGs into their sustainability policies.

Topic 3- Sustainability Development and Systems thinking applications- Corporate Sustainability

A. Theory

Traditionally, an organisation has to fulfil responsibility at four levels: Economic, Legal, Ethical and Philanthropic, also known as Carroll's Pyramid (Carroll, 1999). This model has been further adapted since 1991 and it now also includes environmental sustainability (Stobierski, 2021). Current organisations tend to focus on four slightly different areas: marketplace, environment, community/society and workplace.

It is obvious that taking a systems thinking approach, understanding the relationships between the different areas and their interactions, can be of great benefit when designing and implementing a sustainability strategy for a company.

Carroll's CSR pyramid

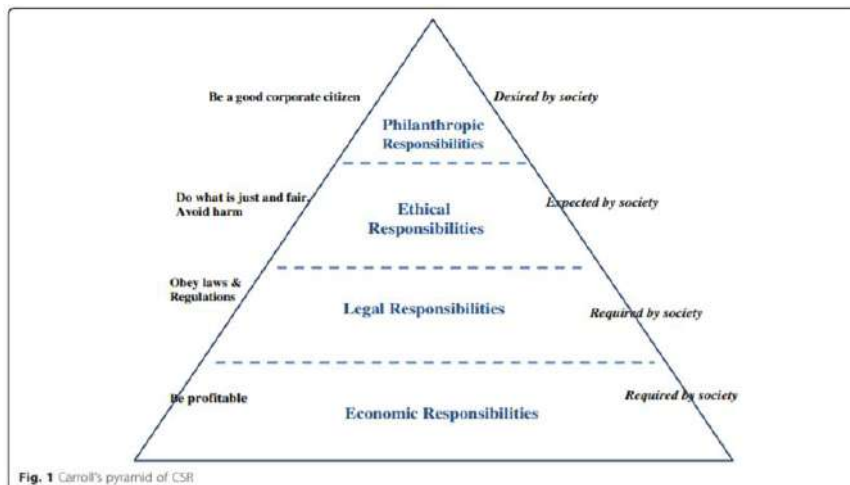


Image taken from https://www.researchgate.net/figure/Carrolls-pyramid-of-CSR_fig2_304662992

For example, current CSR approaches are mainly focused on reducing negative environmental and social impacts such as reducing pollution but flawed economic and political systems can force organisations to degrade the environment and society, by not holding them fully responsible for negative impacts. In competitive markets, this makes it impossible for companies to fully eliminate impacts and remain in business. *Companies can't flourish separately from the systems that sustain them and system change is the only way to achieve sustainability (Dixon, 2018).*

Also, sustainability experts suggest that CSR and sustainability professionals should develop critical for their role system thinking skills such as:

- Understanding the interdependency between systems and subsystems that are relevant for CSR;
- Ability to think holistically;
- Visualization, understanding and analysis of complex, dynamic systems and issues, both externally (for example in the value chain) and internally (for example how the company runs);
- Insight into corporate processes and the underlying connections;
- Knowledge of systems inside and outside of the company;
- Knowledge of that what needs to be done to change status quo systems. ([Sustainability University, 2020](#))

B. Case Study

Below is an example of using a systems thinking approach in Corporate Sustainability Initiatives.

Virgin Media is one of the largest media companies in the UK, with over 11,000 employees and 6 million customers. Recognising their corporate responsibility, they took a systems thinking approach to decide what issues to focus on and to develop and implement a comprehensive sustainability strategy, involving all relevant stakeholders.

After a large-scale assessment in 2020 gathering the feedback of 1,200 employees, 500 customers, 300 business customers and 6 external experts and using a scoring matrix, they identified the most material sustainability issues relevant to their company, such as fair product pricing, digital skills and literacy etc (full list here: <https://www.virginmedia.com/corporate/sustainability/meaningful-connections-plan/our-approach/our-approach-focus-areas>)

They also aligned their goals to SDGs e.g. Goal 10: Reduced inequalities - By giving hundreds of underrepresented communities across the UK access to skills and employment at Virgin Media.

It is clear from their latest [CSR report of 2020](#) and their commitment to their three promises over the next five years, better for people, better for communities and better for the planet that sustainability has been embedded into the [company's strategy](#) and that the company has

taken a systemic approach into incorporating sustainability at every department of the company.

Question: Read the [full 2020 CSR report of Virgin Media](#) and think of any similar initiatives your company/the company you work for can take.

C. Video

Watch the following Tedx Talk by the vice chairman of BCG's Social Impact practice, Wendy Woods talking about the business benefits of sustainability and answer the following question:

What is TSI and how it can improve a business sustainability?

How is TSI connected to Systems Thinking?

https://www.ted.com/talks/wendy_woods_the_business_benefits_of_doing_good/transcript

C. Video (answer)

Watch the following Tedx Talk by the vice chairman of BCG's Social Impact practice, Wendy Woods and answer the following question:

TSI: Total Societal Impact

TSI is the sum of all of the ways business can affect society by doing the real work: thinking about their supply chains, working on their product design and manufacturing processes and their distribution. The real work of business, when done with innovation, can actually create core business benefits for the company and it can solve the meaningful problems in our world today. Systems thinking can contribute towards this concept by identifying and taking into account the interdependencies of all the ways a business can affect society and predicting how they affect each other.

https://www.ted.com/talks/wendy_woods_the_business_benefits_of_doing_good/transcript

D. Learning activity

Think of three examples of actions for each of the elements your company/a company can take.

Types of Corporate Responsibility:

- a. Economic
- b. Environmental
- c. Ethical
- d. Philanthropic

D. Learning activity (possible answers)

Think of three examples of actions for each of the elements your company/a company can take.
(possible answers)

Types of Corporate Responsibility:

- A. Economic: support other companies, invest in green initiatives
- B. Environmental: reduce waste, reduce air pollution, reduce energy consumption.
- C. Ethical: gender equality in staff pay and number of employees
- D. Philanthropic: donation to charities

E. Hints/Tips

Always remember to identify relevant stakeholders and their impact to the organisation and the society when implementing a corporate sustainability strategy.

F. Conclusion

Corporate Sustainability is now part of every business, in one form or another, with larger companies developing and implementing a CSR strategy and incorporating sustainability to their core business. A systems thinking approach can assist in planning and integrating such strategies successfully to a business.

9. Conclusion

The value and benefits of adopting a systems thinking approach when it comes to sustainability is undeniable. Sustainable development cannot be achieved by tackling individual issues, it can only be achieved by taking into account the relationships between issues and goals, stakeholders, companies and the society.

Systems thinking has already been used in corporate sustainability and the implementation of SDGs at national and international level and it can be applied to organisations' sustainability strategies.

10. Quiz

1. Systems thinking involves stakeholders in order to understand cause and effect relationships for actions and goals. True or False.
 - True
 - False
2. A systems thinking approach can be applied to:
 - Policymaking

- SDGs Implementation

- CSR initiatives
- All of the above

3. What are leverage points?

- Feedback loops
- Diagrams
- Places to intervene in a system

4. How many steps does the Participatory Systems Thinking tool consist of?

- 5
- 10
- 20

5. What are the 4 most common types of corporate responsibility?

- Environmental, Economic, Ethical and Philanthropic
- Environmental, Economic, Legal and Societal
- Environmental, Economic, Legal and Philanthropic

10. Quiz (answers)

1. Systems thinking involves stakeholders in order to understand cause and effect relationships for actions and goals. True or False.

- True
- False

2. A systems thinking approach can be applied to:

- Policymaking
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- CSR initiatives
- All of the above

3. What are leverage points?

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- Places to intervene in a system

4. How many steps does the Participatory Systems Thinking tool consist of?

- 5
- 10
- 20

5. What are the 4 most common types of corporate responsibility?

- Environmental, Economic, Ethical and Philanthropic
- Marketplace, Workplace, Community/Society, Environmental

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Module 3: Skills for Sustainable Development

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1. Learning Outcomes

- To gain knowledge about green skills required for sustainable development.
- To gain knowledge about soft skills required for sustainable development.
- To gain knowledge about hard/technical skills required for sustainable development.

2. Course requirements

- Pen and paper/ computer
- Internet access

3. Overview

This module will provide an overview as well as practical examples and exercises on the importance and relevance of green skills, soft skills and hard skills to sustainable development including systems thinking for all business professionals.

These skills (soft skills, emotional intelligence, technical and green skills amongst others) were identified as essential in the survey and interviews conducted with relevant stakeholders for the purpose of this project (for the development of the Intellectual Output (IO)1 guide as well as the needs analysis for the creation of this course (you can find the IO1 Guide [here](#)).

4. Keywords

Systems thinking, sustainability, soft skills, hard skills, green skills

5. Introduction

In order for a business professional, adult trainer or any other relevant stakeholder to be able to incorporate sustainability into their organisation or workplace, there are vital skills to be developed ([Sern et al, 2018](#)), such as skills related to environmental consciousness and awareness (green skills), as well as problem solving, conflict management, empathy and other relevant soft skills and also more technical, hard skills such as data analysis as well as systems thinking.

Topic 1- Green Skills

A. Theory

The European Centre for the Development of Vocational Training (CEDEFOP) defines green skills as “*the knowledge, abilities, values and attitudes needed to live in, develop and support a sustainable and resource-efficient society*” ([Cedefop, 2010a](#)).

The acquisition and enhancement of green skills is essential to the transition to a greener economy but it’s not only necessary for workers with traditional ‘green jobs’ (green jobs are defined as “decent jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency”, ([ILO, 2016](#))).

A study by the European Centre for the Development of Vocational Training ([Cedefop, 2010b](#)) was amongst the first that made the distinction between generic and specific green skills. Generic skills refer to key or core competences whereas specific skills refer to task-oriented competences.

According to [Pavlova \(2018\)](#), generic green skills can be classified into three categories:

1. **Cognitive competencies** (for example, environmental awareness and a willingness to learn about sustainable development, systems and risk analysis, skills to assess, interpret and understand both the need for change and the measures required, innovation skills to identify opportunities and create new strategies to respond to green challenges)
2. **Interpersonal competencies** (for example, coordination, management and business skills to facilitate holistic and interdisciplinary approaches that encompass economic, social and ecological objectives, communication and negotiation skills for discussion of conflicting interests in complex contexts, marketing skills to promote greener products and services)
3. **Intrapersonal competencies** (adaptability and transferable skills that help workers learn and apply new technologies and processes required to green their jobs, entrepreneurial skills to capture opportunities presented by low-carbon technologies)

In addition, a second approach, based on a study by [Per Capita \(2010\), an independent, progressive think tank, dedicated to fighting inequality in Australia](#), suggests the following list of generic green skills (related to environmentally friendly processes that are similar across different sectors):

- quantification and monitoring (waste, energy, water)
- management systems (waste, energy, water)
- procurement and selection
- material use and impact quantification
- impact and use minimisation
- impact assessment

- risk management

These generic skills, in relation to 'green processes', have been included by [Pavlova \(2015\)](#) as a second set of generic green skills (labelled technological competencies) in her classification.

Similarly, but not identically, the Green General Skill Index, developed by the [National Bureau Of Economic Research, a private, nonpartisan organization that facilitates cutting-edge investigation and analysis of major economic issues \(Vona et al, 2016\)](#), identifies four types of skills that are particularly important for green occupations:

<i>Engineering & Technical</i>	
2C3b	Engineering and Technology
2C3c	Design
2C3d	Building and Construction
2C3e	Mechanical
4A3b2	Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment
4A1b3	Estimating the Quantifiable Characteristics of Products, Events, or Information
<i>Operation Management</i>	
2B4g	Systems Analysis
2B4h	Systems Evaluation
4A2b3	Updating and Using Relevant Knowledge
4A4b6	Provide Consultation and Advice to Others
<i>Monitoring</i>	
2C8b	Law and Government
4A2a3	Evaluating Information to Determine Compliance with Standards
<i>Science</i>	
2C4b	Physics
2C4d	Biology

-Green General Skills Identified from O*NET

Image taken from https://www.researchgate.net/figure/Green-General-Skills-identified-from-ONET_tbl2_325350910

JRC has very recently published a report on GreenComp, The European Sustainability Competence Framework (Bianchi et al, 2022), **responding to the growing need for people to improve and develop the knowledge, skills and attitudes to live, work and act in a sustainable manner.**

This framework «is designed to support education and training programmes for lifelong learning. It is written for all learners, irrespective of their age and their education level and in any learning setting – formal, non-formal and informal. Sustainability competences can help learners become systemic and critical thinkers, as well as develop agency, and form a knowledge basis for everyone who cares about our planet’s present and future state».

GreenComp has adopted the following statement to define a sustainability competence: «A **sustainability competence** empowers learners to embody sustainability values, and embrace complex systems, in order to take or request action that restores and maintains ecosystem health and enhances justice, generating visions for sustainable futures.»

GreenComp consists of 12 competences (in **bold**) organised into the four areas (in *italics*) below:

- *Embodying sustainability values*, including the competences
 - **valuing sustainability**
 - **supporting fairness**
 - **promoting nature**
- *Embracing complexity in sustainability*, including the competences
 - **systems thinking**
 - **critical thinking**
 - **problem framing**
- *Envisioning sustainable futures*, including the competences
 - **futures literacy**
 - **adaptability**
 - **exploratory thinking**
- *Acting for sustainability*, including the competences
 - **political agency**
 - **collective action**
 - **individual initiative**

Systems thinking here is described as an approach to sustainability problems taking into consideration all sides, time, space and context in order to understand how elements interact within and between systems.

Equipping learners with *systems thinking* is considered necessary to understand complex sustainability problems and their evolution. *Systems thinking* allows us to understand reality in relation to other contexts (local, nation, global) and fields (environment, social, economic, cultural). Thinking in systems enables learners to identify feedback mechanisms, intervention points and interactive trajectories.

Systems thinking can be understood as a tool for evaluating options, decision- making and taking action recognising that parts of a system act differently when taken apart from the system. In fact, contrary to this, fragmentary thinking, i.e. analysing parts in isolation, instead of the whole interconnected system, increases short-termism and could lead to an oversimplification of sustainability problems which may not correspond to reality.

B. Case Study

The following case study is an example of green skills training at a company level.

The Bakers Food and Allied Workers' Union (BFAWU), in the UK, has been working with high street baker Greggs to train staff and raise environmental awareness.

The first training session looked at carbon footprints, and further sessions covered the topics of waste management and energy use.

Read the full case study [here](#) and think of ways that you/your organisation can reduce your carbon footprint, waste management and energy overuse.

CASE STUDY
BFAWU WORK WITH GREGGS TO GO GREEN

The Bakers Food and Allied Workers' Union (BFAWU) has been working with high street baker Greggs to train staff and raise environmental awareness.

Sarah Woolley, the general secretary of the BFAWU, has been leading the unions work to green workplaces where they have members.

Sarah explained why the union is getting involved with the green skills agenda: "After moving the climate change motion at TUC Congress in 2017, we approached a number of employers about our plans to extend the health and safety reps role to incorporate an environmental aspect, with a view to work towards green reps in the future, when we had a training programme in place."

"Greggs bit our hands off. We explained that our health and safety reps would initially become SHE reps (safety, health and environment) and they jumped at the chance to work with us to make that happen."

Greggs were very keen to work with the union on this agenda and offered



"It's refreshing to have an employer engage so much and it not be a fight!"

to produce some training that was relevant to the company, as well as being acceptable to the union.

Sarah said: "We really are pushing at an open door. Greggs have had a SHE department for years and were waiting for us to catch up – it's usually the other way around. It's refreshing to have an employer engage so much and it not be a fight!"

Sessions were trialled with reps before rolling out the training. The first training session looked at carbon footprints, with

further sessions covering waste management and energy use.

Sarah feels this is just a start and said: "It would be fantastic if other employers would engage in this way. We now have a template of how the sessions can be run; they just need tweaking to make them relevant to specific employers."

"The format Greggs has used is great. They have included us in the discussions, and to a point the development, though they have taken the

lead with that. They have made the sessions short, informative and engaging. There really is no reason why other employers can't work with us to do the same – many are doing some great things around the environment!"

Beyond the work with Greggs, the BFAWU has been collating green surveys that were completed at their annual

conference and various regional meetings. Sarah said this has shown there is an interest from reps and members for the union to develop a role for green reps.

In the meantime, the union is producing a quarterly Green Future newsletter which is full of best practice, ideas that can be done at home or at work, interesting articles and

links to more information and online resources.

Back at Greggs, the reps who attended the sessions have given very positive feedback, mainly about being more aware of their own behaviour and how they can make a difference in their shops or at home.

C. Video

The video below which was created by [The International Labour Organisation](#) (a United Nations agency which focuses on social and economic justice through setting international labour standards) highlights the importance of skills development in achieving a just transition to a greener economy and in building environmentally sustainable societies for all.

Watch the video and discuss the following question: **What is one of the biggest obstacles in creating a more sustainable, environmentally-friendly economy, based on the video?**

<https://www.youtube.com/watch?v=dUlyz2MMFA>

C. Video (answer)

Skills mismatch, skill gaps, lack of knowledge and that's why it's important to develop Green Skills.

D. Learning activity

Below is a list of Green Skills, as mentioned on the Theory section. Put a tick next to the ones you or your organisation has developed and an x next to the ones you or your organisation would need to work on, so it can help you improve your skill set.

1. Environmental awareness and a willingness to learn about sustainable development
2. systems and risk analysis
3. Skills to assess, interpret and understand both the need for change and the measures required
4. Innovation skills to identify opportunities and create new strategies to respond to green challenges;)
5. Coordination, management and business skills to facilitate holistic and interdisciplinary approaches that encompass economic, social and ecological objectives
6. Communication and negotiation skills for discussion of conflicting interests in complex contexts
7. Marketing skills to promote greener products and services)
8. Adaptability and transferable skills that help workers learn and apply new technologies and processes required to green their jobs
9. Entrepreneurial skills to capture opportunities presented by low-carbon technologies
10. Quantification and monitoring (waste, energy, water)
11. Management systems (waste, energy, water)
12. Procurement and selection
13. Material use and impact quantification
14. Impact and use minimization
15. Impact assessment

E. Hints/Tips

It's necessary to improve your Green skills in employees to develop the "green" dimensions of company's business.

The importance of green skills in developing a greener, more environmentally-friendly but also sustainable economy is essential and demonstrated in several studies.

Anyhow, these may be enough to contribute to sustainability goals.

For example, «green technologies» often promise positive outcomes for sustainability, yet they may have unintended consequences when scaled up to the bigger system level (e.g. loss of biodiversity and increased competition for land due to biofuel production).

Without a comprehensive understanding of complex problems and potential solutions, such consequences could be difficult to identify (multiple SDGs).

F. Conclusion

Systems thinking knowledge, skills and attitudes are necessary.

7. Topic 2- Soft Skills

A. Theory

In addition to the green skills mentioned in the first topic, a number of soft skills are also considered to be increasingly important, and are considered “skills of the future”, including also those necessary for the Fourth Industrial Revolution, and more particular skills such as design thinking, creativity, adaptability, resilience, and empathy ([Arthur, 2021](#)).

Research has also shown ([Ngang, 2011](#)) that developing soft skills in younger generations is essential in education for sustainable development, and in particular skills such as communicative skills, critical thinking and problem-solving skills,

teamwork skills, life-long learning and management of information, entrepreneurship skills, ethic, moral and professional skills and leadership skills.

Furthermore, the United Nations has recognised the importance of emotional intelligence in sustainable development and more specifically, in achieving the SDGs.

Emotional Intelligence, the ability to identify, use, understand, and manage emotions in an effective and positive way and its elements, namely self-awareness, self-regulation, motivation, social skills and empathy can be taught and developed at any age and its importance was highlighted by the UN.

For example, in 2019, the United Nations organised the first conference on Emotional Intelligence and how it can support the SDGs ([UN, 2019](#)).

[Daniel Goleman](#), a leader on the topic of Emotional Intelligence was one of the keynote speakers at the aforementioned conference. You can read more about his thoughts on emotional intelligence and environmental education from a young age [here](#), an article in which he co-wrote with two sustainability experts (Lisa Bennett and Zenobia Barlow) and in which they describe 5 ways to develop ‘ecoliteracy’.

Additionally, research has indicated that the development of emotional intelligence skills can support transformation towards sustainability. [Wamsler et al \(2020\)](#) have identified a competency framework about skills that can support such change:

- **Openness, self-awareness and reflection:** The ability to meet situations, people, others and one's own thoughts and feelings with openness, presence and acceptance.
- **Compassion and empathy:** The ability and desire to see and meet oneself, others and the world with care, humility and integrity.
- **Perspective-seeking and relationality:** The ability to see and bring in more perspectives for a broader, relational understanding of oneself, others and the whole (e.g. related to one's understanding of the state of the planet and how information is processed).
- **Agency, empowerment and sense-making:** The ability to see and understand broader and deeper patterns, and our own role in the world in this regard. This also relates to optimistic/hopeful emotions and attitudes.
- **Values-based courage and engagement:** The ability to navigate oneself through the world, based on insights into what is important (intrinsic values), and to have the (moral or ethical) courage to act on them. This relates to principled, action-oriented attitudes.

These skills relate to four domains: personal (how we relate to ourselves); social/ collective (how we relate to others); systems (how we relate to nature and the environment); and the future (how we relate to future generations). They influence our ways of being (ontologies), thinking (epistemologies) and acting (ethics).

B. Case Study

The following example stresses the importance of emotional intelligence and other soft skills in sustainability leadership.

Odgers Berndtson, an expert in executive search and senior human capital management, an international company with 250 Partners and their teams in 30 countries, has recognized the vital role of emotional intelligence in sustainability leadership.

Based on their 2021 report on Sustainable Intelligence (SQ) and responsible leadership in Process industries and on insights from their work, a responsible leader needs to have certain qualities to make an impact.

Read the article below and identify those qualities (a). Also, what methods might help in implementing sustainability (b), according to the article?

<https://www.odgersberndtson.com/media/10202/sustainability-intelligence-process-industries-2021.pdf>

B. Case Study (possible answers)

A responsible leader needs to have a passion for the subject, to be honest and ethical, and to have a strong sense of purpose that is inspiring to others. They also need to be creative, entrepreneurial and curious. Critically, they need to have the courage to take unpopular

positions and point out unsustainable practices. To successfully navigate those hard discussions with the CFO, you need to be using the same vocabulary.

As one interviewee put it, “Finance is the grammar of the company and sustainability needs to be linked to this language.” A responsible leader needs to be flexible, agile, resilient and accountable. Importantly, they need to be highly adept at stakeholder management.

The role requires a leader who can work with teams with different objectives and instill a sense of importance and urgency for the sustainability mission throughout the organization. Ultimately, a responsible leader in the process industries needs to have the Sustainability Intelligence (SQ) to bridge sourcing and product with both finance and corporate social

responsibility. That’s the way to embed sustainability priorities into the DNA and everyday activities of a company.

entivizing suppliers, executives and teams.

(Taken directly from the text: <https://www.odgersberndtson.com/media/10202/sustainability-intelligence-process-industries-2021.pdf>)

C. Video

Below is a link to the talk Rich Fernandez (CEO at Search Inside Yourself Leadership Institute) gave at the UN Emotional Intelligence Conference about the role of mindfulness and emotional intelligence on organisations.

Watch the video and answer the following question:

How does EQ help organisations?

<https://www.youtube.com/watch?v=YR-sYxOacNA>

C. Video (answer)

Answer: EI can help organisations in various ways as it can be seen below, it can enhance leadership, sustain performance and enable well being, which consequently can lead to higher employee engagement, operational excellence, innovation and creating value for staff and customers.

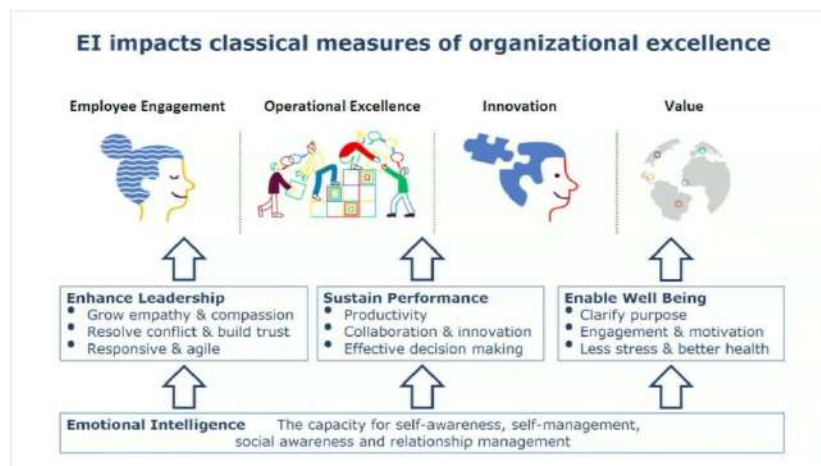


Image taken from: <https://www.youtube.com/watch?v=YR-sYxOacNA>

D. Learning activity

Fill in the following free tools to assess your soft skills and emotional intelligence. Which areas you have already developed and in which areas do you need to work on, based on the results?

<https://www.bizlibrary.com/soft-skills-assessment/>

<https://www.mindtools.com/pages/article/ei-quiz.htm>

E. Hints/Tips

Invest time and effort on improving your and your personnel's soft skills, which can in turn assist in the enhancement of sustainable development.

F. Conclusion

The importance of soft skills and emotional intelligence in sustainable development and more specifically in sustainability professionals as well as every employee has been widely recognised, as it's evident from the previous references and case studies, and should be taken into account when developing and implementing sustainability strategies.

8. Topic 3- Hard Skills

A. Theory

As mentioned at the Green Skills section, technical skills are also necessary when designing and implementing sustainable development initiatives.

[IEMA \(Institute of Environmental Management and Assessment\)](#), a UK professional body for everyone working in environment and sustainability, [developed a sustainability skills map](#). According to their map several soft and technical skills are essential (see image on the next slide) at any level of management.

The more technical skills required are:

- Analytical thinking
- Problem reframing and resolution (systems thinking)
- Knowledge of policy, regulation and legislation
- Knowledge of issues and principles
- Knowledge of management and assessment tools

IEMA Sustainability Skills Map

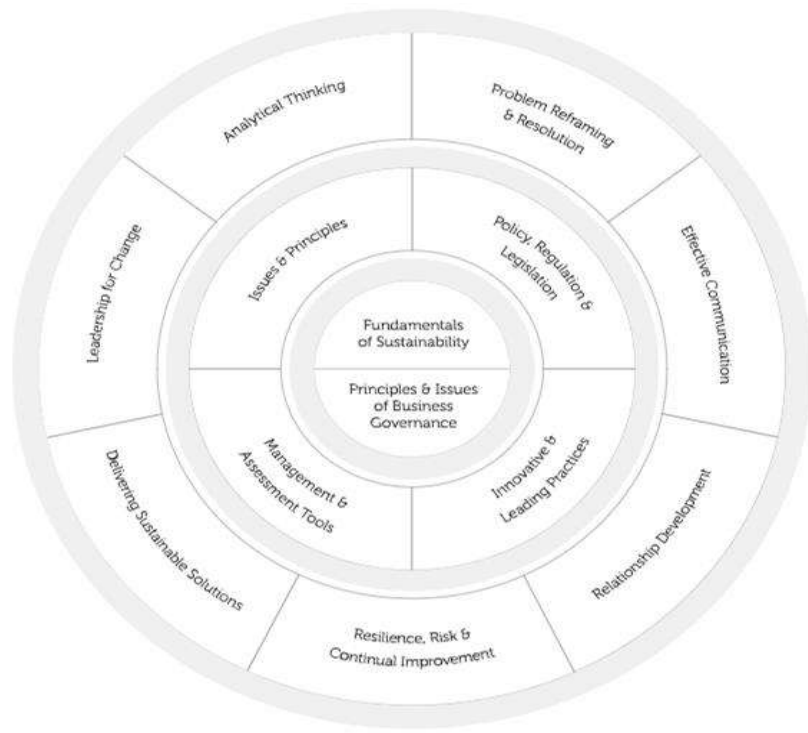


Image taken from <https://www.iema.net/sustainability-skills-map>

It is important to take a strategic, more systemic approach when it comes to the development of sustainability skills.

According to [Tantram \(2022\)](#), organisations which take a meaningful approach towards sustainability they treat it like any other issue which has strategic implications for the company. This would involve:

1. Identifying existing internal expertise
2. Identifying staff requiring awareness/orientation training and those requiring in-depth competency development
3. Identifying internal and external sources of training and support
4. Including sustainability aspects in personal development plans.

In addition, basic data skills ([Cote, 2021](#)) such as being able to track and analyse the results of sustainability efforts over time—along with their effect on various parts of the company—can enable an organisation to prove the impact of their sustainable development initiatives and communicate it through data visualisation.

B. Case Study

The following case study identifies a list of important sustainability skills for graduates.

In 2020, EAUC - The Alliance for Sustainability Leadership in Education, and Chance Agents UK, a charity and not-for-profit organisation who offers work placements in

sustainability as well as training and online learning to graduates and young people in topics such as project management, presentation skills and communicating sustainability, conducted a scoping study which aimed *“to bring further understanding to the area of changing graduate requirements, graduate skills gaps, and sustainability skills”*.

The results were based on questionnaires and interviews with a range of key actors from different stakeholder groups: recent graduates, business leaders, and university leaders.

Read the full report below and answer the following question: What sustainability skills, soft and hard were identified as important based on the study?

https://www.sustainabilityexchange.ac.uk/files/future_graduate_skills_report_change_agents_uk_eauc_october_2020.pdf

B. Case Study (answers)

Respondents were asked what skills or knowledge are needed to deliver sustainability, or work in a sustainability-related role.

Hard skills were the most frequently mentioned, including technical knowledge of specific sustainability processes such as energy efficiency and environmental management (n=9), and a theoretical understanding of sustainability (n=6). In addition to skills already mentioned in the General Employability' section, other soft-skills considered important by respondents were public engagement (n=3), scientific research skills (n=2) systems thinking (n=1), and a commitment to sustainability (n=1) (See Table 6).

Respondents were also asked who they think has a responsibility to develop the sustainability skills of students and graduates (See Table 7). Nine respondents (56%) considered it the responsibility of the students or graduates themselves to improve their skill-set, and nine also said that it is the responsibility of universities to build sustainability skills into the curriculum. Six respondents (37.5%) stated that the employer should develop the sustainability skills of their recent employees.

Others thought that there should be support for developing skills from education at all levels through school, university and in the workplace (n=6), while three respondents (19%) stated that it was the responsibility of the government to make sure that sustainability education was compulsory at some level.

C. Video

The following video was created by Terrafiniti Sustainability Consultants, in which they discuss sustainability skills gaps.

Watch the video and answer the following question: **What are some of the skill gaps the Terrafiniti sustainability consultancy has identified based on their work with organisations in different countries and sectors?**

<https://www.youtube.com/watch?v=RiWRvX4cNL0>

C. Video (answer)

- Understanding sustainability as a process (systems thinking)
- Understanding and quantifying non-financial company value
- Understanding where sustainability delivers financial benefits
- Developing and implementing successful strategies

D. Learning activity

- Make a list of the technical skills you/your employees will need to develop in regards to sustainability.
- After that, look up online courses or local trainers which can provide such training, in order to help you improve your technical skillset.

E. Hints/Tips

- Assess your/your employees' sustainability technical skill gaps and help them develop/improve in those areas with relevant training.

F. Conclusion

- It is evident that hard, technical skills are vital when it comes to sustainable development, therefore organisations should invest time and effort in improving their employees' relevant skills.

9. Conclusion

It's clear that green (cognitive, interpersonal, intrapersonal and technical competences), soft (team-work, problem solving, emotional intelligence including empathy and others) and hard skills (analytical thinking, basic data skills, knowledge of policy, regulations etc) are essential not only for sustainability professionals but for all business professionals in all sectors.

10. Quiz

1. According to Pavlova what are the 4 categories of green generic skills?
 - a) Cognitive, personal, interpersonal and technical competences
 - b) Interpersonal, intrapersonal, cognitive and technical competences
 - c) Interpersonal, intrapersonal, technical and non-technical competences

2. What are the 4 categories of the Green General Skill Index?
 - a) Engineering & technical, operation management, monitoring and science
 - b) Engineering, managerial, scientific and technical
3. Soft skills are not important as technical skills. True or False?
 - a) True
 - b) False
4. What is emotional intelligence?
 - a) The ability to identify and use emotions.
 - b) The ability to identify, use and understand emotions.
 - c) The ability to identify, use, understand, and manage emotions in an effective and positive way.
5. According to the EAUC study, which of the following technical skills are important for sustainability?
 - a) Analytical thinking
 - b) Problem reframing and solution (systems thinking)
 - c) Knowledge of policy, principles, management and assessment tools
 - d) All of the above

10. Quiz (answers)

1. According to Pavlova what are the 4 categories of green generic skills?
 - a) Cognitive, personal, interpersonal and technical competences
 - b) Interpersonal, intrapersonal, cognitive and technical competences
 - c) Interpersonal, intrapersonal, technical and non-technical competences
2. What are the 4 categories of the Green General Skill Index?
 - a) Engineering & technical, operation management, monitoring and science
 - b) Engineering, managerial, scientific and technical
3. Soft skills are not important as technical skills. True or False?
 - a) True
 - b) False

4. What is emotional intelligence?
- The ability to identify and use emotions.
 - The ability to identify, use and understand emotions.
 - The ability to identify, use, understand, and manage emotions in an effective and positive way.
5. According to the EAUC study, which of the following technical skills are important for sustainability?
- Analytical thinking
 - Problem reframing and solution (systems thinking)
 - Knowledge of policy, principles, management and assessment tools
 - All of the above

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Module 4: Setting, Measuring and Assessing Sustainable Goals**Content Table**

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1. Learning Outcomes

- To gain knowledge on how to set sustainability goals.
- To gain knowledge on how to measure sustainability goals.
- To gain knowledge on how to assess the impact of sustainability goals.

2. Course requirements

- Pen and paper/ computer
- Internet access

3. Overview

Based on the expectations of the participants of the survey and interviews conducted with relevant stakeholders for the purpose of this project, regarding this course (mainly based on the needs analysis for the creation of this course, but also the development of Intellectual Output (IO)1, you can find the IO1 Guide [here](#)), a need was identified on learning how they can put sustainability into practice, how to design a strategy and identify relevant KPIs, as well as learn about relevant tools.

Therefore, this module will focus on how to implement a sustainability strategy, from setting to measuring and assessing sustainability goals.

4. Keywords

Systems thinking, sustainability, setting goals, implementing goals, measuring goals, assessing goals, social impact, KPIs, SDGs

5. Introduction

In order for an organisation to develop and implement a successful sustainability strategy, it's essential that they have the knowledge and skills to set realistic and measurable goals, recognising their inter-connectivity and interdependence, as well as measure and assess the real impact of those goals.

A. Theory

Before developing a sustainability strategy, and setting relevant goals, the organisation should decide what sustainability model to adopt (see Module 1: Introduction to Sustainable Development). Regardless of the chosen model, recent studies ([Goni et al, 2021](#)) have indicated that the main features of most models have 9 aspects in common:



Image taken from <https://link.springer.com/article/10.1007/s10098-020-01886-z>

These 9 aspects are, as expected, related to each other and for an organisation to be able to achieve true sustainability (at all levels), it will need to transform its entire business logic. Therefore, a systems thinking approach can help design an effective strategy across the board.

For example, [Taeuscher and Abdelkafi \(2016\)](#), developed a model (Business Model for Sustainability-BMfS) which “*aims at creating value for various stakeholders and the natural environment*”. Although this model addresses sustainability from a narrow perspective (the natural environment), the process followed can be adapted for a broader, more inclusive model, taking into account other areas such as society and the economy.

The process the authors followed was: conceptualising the basic feedback loops, then, proposing partial models for the firm, natural environment, entrepreneur/manager, and customer, followed by integrating these partial models within a systemic, multilevel model. Finally, they generated propositions that combine insights from the model and existing literature.

The figure depicts the [Taeuscher and Abdelkafi \(2016\) model](#) :

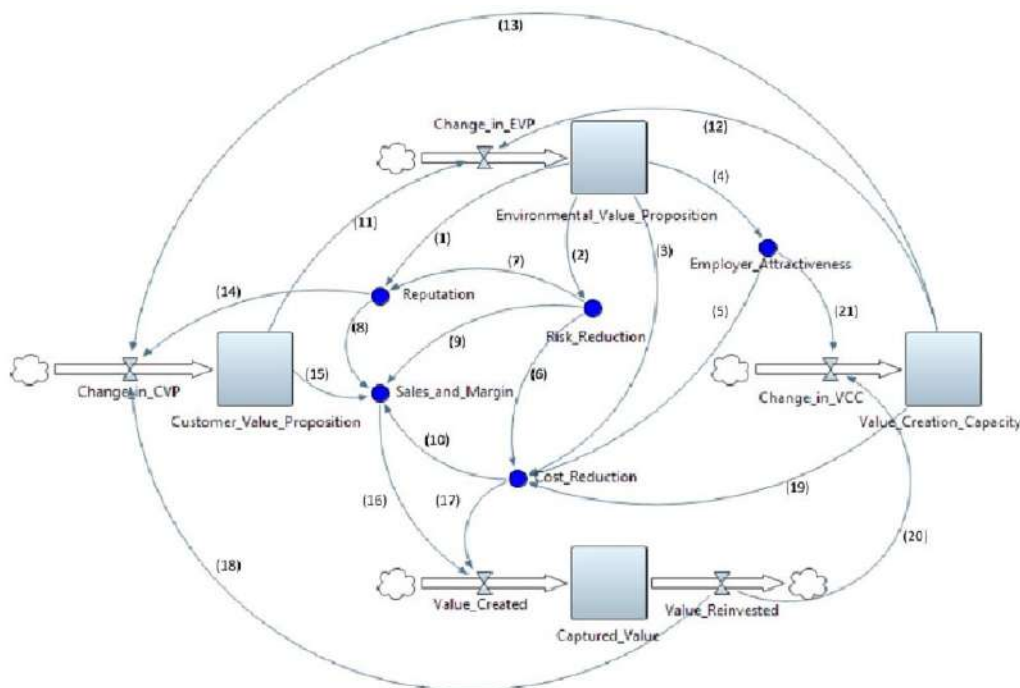


Image taken from <https://www.semanticscholar.org/paper/Business-Models-for-Sustainability-From-a-System-Abdelkafi-T%C3%A4uscher/bffc30043c5e39aacb9d3abb64e6fca7248c4e1c/figure/2>

In addition, according to organisational sustainability models developed and used by sustainability consultancies ([GPM, 2021](#)), an assessment of the organisation to determine the environmental, social and economic sustainability risks and opportunities can assist the organisation to have a clear picture of where they stand, reduce their cost, improve continuously and enable sustainability and transparency reporting ([GPM, 2021](#)).

A number of sustainability consultancies offer free or paid pre- and full assessment of an organisation, in order to help them set realistic and achievable goals.

For example, GPM (2021), has created a business sustainability assessment tool, focusing on a number of different areas of the Three Ps (People-Planet-Profit) as well as Practice, such as: Culture, Leadership, Stakeholder Engagement, Human Rights etc. Check image below for the full list (you can access the full size here: <https://greenprojectmanagement.org/the-psm3-sustainability-assessment>):

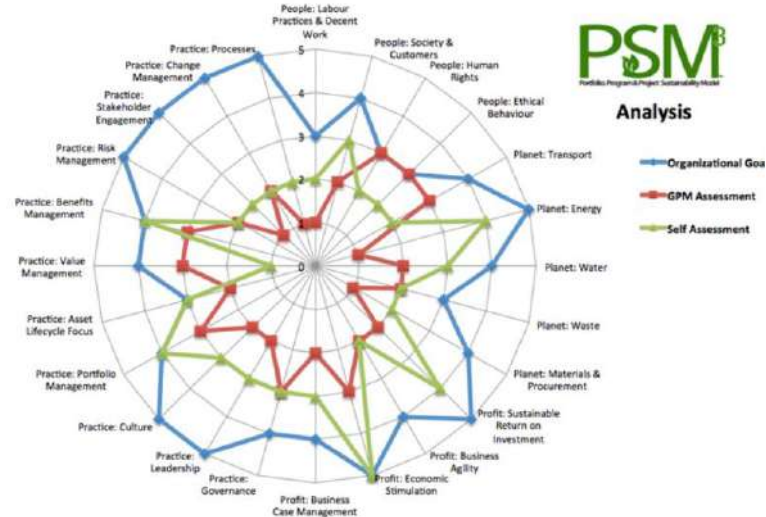


Image taken from <https://greenprojectmanagement.org/the-psm3-sustainability-assessment>

A framework often used in setting sustainability goals is Theory Of Change (ToC). ToC, which originated from Peter Drucker's management by objectives concept ([Drucker, 1954](#)), is a methodology for planning, implementing and evaluating a desired social change.

ToC focuses on mapping out what a program or an initiative does (activities/interventions) and how this leads to the achievement of the desired goals. This is done by first identifying the desired long-term goals and then identifying all the conditions (outcomes) required (and how these are related to each other) for the goals to occur for example target audience, key stakeholders, available resources etc.






This forms the Outcomes Framework, which acts as a basis for identifying what type (s) of activity/intervention can lead to the outcomes identified as preconditions for achieving the long-term goal, which enables a better understanding of the link between activities and desired goals and leads to better planning.

You can learn more about Theory of Change [here](#).






Furthermore, as mentioned on Module 1, more and more business decide to align their sustainability goals to the UN Sustainable Development goals and a number of tools and resources have been developed in order to assist companies to do that.

For example, the SDG Compass provides guidance for companies on how to align their business strategy as well as measure and manage their contribution to the achievement of SDGs.

You can find the full guide here: https://sdgcompass.org/wp-content/uploads/2015/12/019104_SDG_Compas_Guide_2015.pdf

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	Understanding the SDGs	What are the SDGs?	7
		Understanding the business case	8
		The baseline responsibilities for business	10
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		Select indicators and collect data	14
		Define priorities	15
	Step 03		16
	Setting goals	Define scope of goals and select KPIs	17
		Define baseline and select goal type	18
		Set level of ambition	18
		Announce commitment to SDGs	20
	Step 04		21
	Integrating	Anchoring sustainability goals within the business	22
		Embed sustainability across all functions	23
		Engage in partnerships	24
	Step 05		25
	Reporting and communicating	Effective reporting and communication	27
		Communicating on SDG performance	28

You can find the full guide here: https://sdgcompass.org/wp-content/uploads/2015/12/019104_SDG_Compas_Guide_2015.pdf

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B. Case Study

Below is an example of a sustainability self-assessment tool for companies, this one was developed for tourism SMEs

The consortium of the SUSTAIN-T (Sustainable Tourism Through Networking and Collaboration) Erasmus+ project developed a Sustainability Self-Audit tool for small tourism or micro enterprises.

Sustainability Self-Audit Tool is designed for tourism micro and small enterprises. The objective of the Tool is to help tourism MSEs determine their performance across the major areas of sustainable tourism. It focuses on the enterprise's internal policies and practices. It reveals where existing practices support sustainable tourism and where improvement is needed.

The Tool is based on the Global Sustainable Tourism Council (GSTC) Industry Criteria (Hotels & Tour Operators, V3 - 21 December 2016). These criteria provide common understanding of what "sustainable tourism" means and represent the minimal requirements which any tourism enterprise should inspire to meet. According to the GSTC Criteria, the Self-Audit Tool is structured around the following four sections:

- Sustainability planning and sustainable management in the tourism sector
- Maximizing social and economic benefits of sustainable tourism to local communities
- Maximizing sustainable tourism benefits to cultural heritage
- Reducing negative impacts of tourism on the environment

Read the full guidance below and the criteria and indicators of the self-assessment questionnaire. Which of these can be applied to your business/other types of business other than tourism?

http://www.sustain-t.eu/uploads/IO3%20Tools_compiled%20version_UK.pdf

C. Video

The following video is about Theory of Change and how it affects sustainability impact.

Reflection question: In addition to the 5 building blocks, what other important elements does the presenter mention?

<https://www.youtube.com/watch?v=kncR3EHdrms>

C. Video

The following video is about Theory of Change and how it affects sustainability impact.

Reflection question: In addition to the 5 building blocks, what other important elements does the presenter mention?

<https://www.youtube.com/watch?v=kncR3EHdrms>

D. Learning activity

Download the following sustainability assessment tool, developed by the Sustainable Knowledge Group (SKG) and fill it in based on the knowledge you have of your organisation/the organisation you work for.

<http://sustainabilityknowledgegroup.com/download/119181/?uid=75b66d1f2b>

1. In which of the areas are you performing well, and in which do you need to improve on?
2. What goals can you set regarding those areas and how are they related to each other?
3. How do these goals can be aligned to SDGs?

E. Hints/Tips

Frameworks such as Theory of Change (ToC) and systems thinking can assist you in better understanding the relationship between your sustainability goals and the conditions that need to be met in order to achieve those goals.

F. Conclusion

In order for an organisation to set meaningful and realistic sustainability goals a holistic approach should be taken. Self-assessment of the organisation's level or readiness or sustainability maturity combined with frameworks such as ToC and systems thinking can help the organisation map out their desired goals, identify relevant stakeholders, resources, potential risks and opportunities and set realistic, achievable goals in areas that the organisation is not performing that well, taking into account the interconnections between all relevant elements.

Topic 2- Measuring Sustainability Goals

A. Theory

After setting sustainability goals and forming a comprehensive sustainability strategy, the next step is to set a number of indicators for each of the goals, in order to be able to measure the achievement of those goals.

Key Performance Indicators (KPIs) are a set of quantifiable measurements of performance over time for specific objectives ([Qlik, 2021](#)).

There is a variety of different type of indicators. Some of the most common ones are:

- **Quantitative:** indicators represented by numbers e.g. ratios, percentages, rating scales etc.
- **Qualitative:** indicators that are not expressed numerically but through feelings or opinions e.g. an employee satisfaction survey.
- **Financial:** Financial indicators are a marker of a business's monetary growth and stability. When paired with other KPIs, this indicator can help paint a more complete picture of your company's financial viability.

For a full list of indicators check out this website: <https://www.masterclass.com/articles/key-performance-indicators-explained#12-types-of-key-performance-indicators>

Businesses have already started using sustainability KPIs, mainly in regards to environmental sustainability but also in other aspects.

For example, according to [Swallow \(2022\)](#), some of the sustainability KPIs businesses have been using are:

- Carbon footprint
- Consumption of energy
- Supply chain miles
- Waste reduction and recycling rates and
- Social impact

In addition, [Savkin \(2017\)](#) stresses the importance of focusing the existing strategy of a business on sustainability and ensuring that business goals meet the requirements of sustainability.

This can be achieved by:

1. Analysing stakeholders such as governmental regulators, green customers (sustainability-aware customers and employees) and local communities.
2. Focus the goals on each perspective:
 - Do customer goals take into account the interests of sustainability stakeholders?
 - Do internal goals estimate the environmental impact (waste, energy, impact on water and air)?
 - Does the learning and growth perspective help promote sustainability values and culture? How does IT help the company to be more sustainable?
 - Do talent-related goals (see the HR scorecard) take into account labour best practices, impact on community?

As mentioned on Topic 1, it is important to align sustainability goals to the SDGs and that led to the development of relevant material and guidance by a variety of relevant organisations.

For example, the Global Reporting Initiative (GRI) and UN Global Compact have launched a set of resources for businesses to measure and disclose their impact on the SDGs ([Van de Wijs, 2020](#)).

B. Case Study

The following case study is an example of a useful tool for aligning business indicators to the SDGs.

SDG compass, which was developed by GRI, the UN Global Compact and the World Business Council for Sustainable Development (WBCSD), incorporates feedback received through three consultation periods from companies, government agencies, academic institutions and civil society organisations worldwide.

One of the tools developed is a list of business indicators aligned to the SDGs.

Look at the full list of business indicators below and think of which business indicators of your company/the company you work for are similar to the ones of your company.

<https://sdgcompass.org/business-indicators/>

C. Video

The following video is about the NIKE sustainability strategy map and their scorecard.

What are the benefits of using a sustainability scorecard, such as the software used in the video example?

<https://www.youtube.com/watch?v=r-vZvc-yglk>

C. Video (answers)

2	Benefits
	<ul style="list-style-type: none">✘ A precise, on-going, decision making, monitoring and reporting tool,✘ Gives a reliable view to all stakeholders,✘ Builds employee engagement,✘ True comparability between businesses,✘ Supports ROI calculations,✘ Works with all existing frameworks (UN-SDG, etc.),✘ Provides International consistency,✘ Guarantees achievement is connected to bringing forth a flourishing future, and✘ Anti-greenwash.

D. Learning activity

Make a list of the goals you set at the learning activity for Topic 1 and decide 1-3 indicators you can use to measure the achievement of those goals.

E. Hints/Tips

Using KPIs aligned to SDGs can greatly benefit your organisation/the organisation you work for.

F. Conclusion

After setting sustainability goals, it's essential to set up performance indicators in order to measure their progress and final achievement.

8. Topic 3- Assessing sustainability goals

A. Theory

After setting up indicators for each of the sustainability goals, gathering and analysing the data would then lead to assessing their success by assessing their impact.

Unless companies commit to measuring the impact of their sustainability initiatives will only solve parts of the problem or have no real impact at all ([Radeke, 2016](#)).


Radeke emphasises the importance of impact assessment to stakeholders, from investors, to customers and employees and making sure to translate the results according to the stakeholder they want to influence with the impact assessment. She also stresses the necessity to go beyond measuring outputs, but also track outcomes and impacts.

Furthermore, it is clear that measuring impact is key to achieving the SDGs, as if the governments' and businesses' sustainability efforts cannot be assessed, their contribution towards the SDGs cannot be accurately measured.

There is a number of tools and frameworks that can be used to assess sustainability goals.

To begin with, The Global Reporting Initiative, an international independent standards organization that helps businesses, governments and other organizations understand and communicate their impacts on issues such as climate change, human rights and corruption, in addition to their Universal Standards, that can be used to assess impact, has developed a guide on how to link SDGs to their reporting standards ([GRI, 2021](#)).

For example, SDG 8 – Decent Work and Economic Growth can be mapped out as follows ([GRI, 2021](#)):

SDG	Target	Available Business Disclosures	Disclosure	Source
	8.5	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region	EU15	G4 Sector Disclosure 2009
	8.5	Programs and processes to ensure the availability of a skilled workforce	Former EU14	G4 Sector Disclosure 2009
	8.8	Days worked by contractor and subcontractor employees involved in construction, operation & maintenance activities	EU17	G4 Sector Disclosure 2009
	8.8	Number (and percentage) of company operating sites where artisanal and small-scale mining (ASM) takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks	MM8	G4 Sector Disclosure 2010
	8.8	Number of process safety events, by business activity	OG13	G4 Sector Disclosure 2012
	8.8	Number of strikes and lock-outs exceeding one week's duration, by country	MM4	G4 Sector Disclosure 2010
	8.8	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training	EU18	G4 Sector Disclosure 2009
	8.8	Percentage of the organization operating in verified compliance with an internationally recognized health and safety management system	GRE6	G4 Sector Disclosure 2011
	8.8	Percentage of working time lost due to industrial disputes, strikes and/or lock-outs, by country	FP3	G4 Sector Disclosure 2010
	8.8	Policies and requirements regarding health and safety of employees and employees of contractors and subcontractors	Former EU16	G4 Sector Disclosure 2009
	8.10	Access points in low-populated or economically disadvantaged areas by type	FS13	G4 Sector Disclosure 2008
	8.10	Initiatives to enhance financial literacy by type of beneficiary	Former FS16	G4 Sector Disclosure 2008
	8.10	Initiatives to improve access to financial services for disadvantaged people	FS14	G4 Sector Disclosure 2008
	8.10	Monetary value of products and services designed to deliver a specific social benefit for each business line broken down by purpose	FS7	G4 Sector Disclosure 2008
	8.10	Percentage of the portfolio for business lines by specific region, size (e.g. micro/SME/large) and by sector	FS6	G4 Sector Disclosure 2008

Another well-known framework is [Social Return On Investment \(SROI\)](#). SROI is a method for measuring non-financial values such as social, economic and environmental factors.

Similarly, to other models, it involves identifying stakeholders, mapping outcome incomes, developing indicators, and embedding them into strategy planning, amongst other steps.

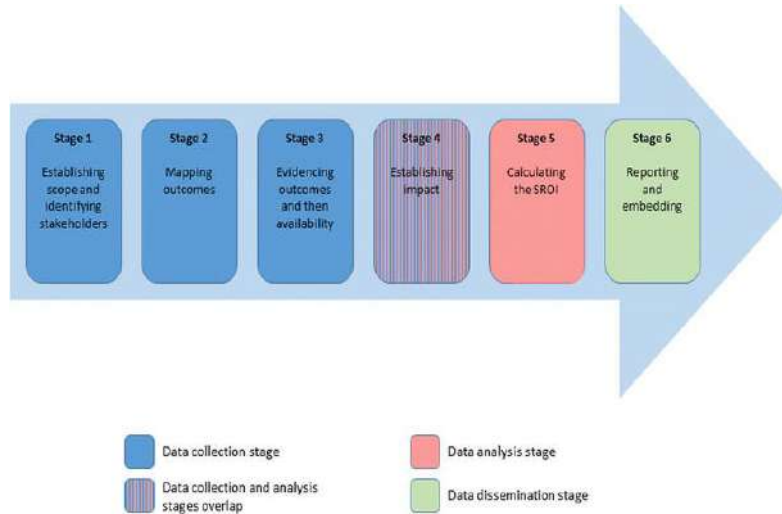


Image taken from https://www.researchgate.net/figure/Stages-of-the-SROI-process_fig1_279309644

B. Case Study

Below is an example of an annual sustainability report of a Philippino conglomerate, in which they asses the impact of their sustainability goals.

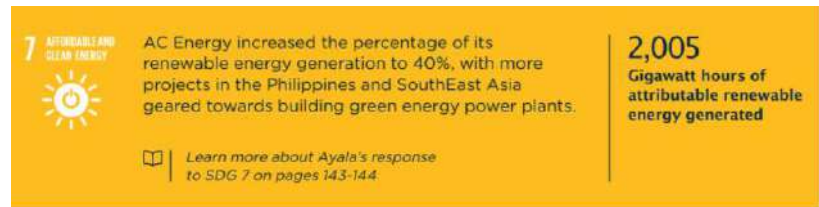
Ayala is a public group of companies based in Philippines. It is the country's oldest and largest conglomerate and has a portfolio of diverse business interests including

retail, education, real estate, banking, telecommunications, water infrastructure, renewable energy, electronics, information technology, automotive, healthcare, and management and business process outsourcing.

It produces an annual comprehensive corporate sustainability report which demonstrates the impact of their sustainability initiatives in various ways, also incorporating the SDGs. For example, the company impact is measured in connection with three national megatrends in the Philippines and disclosing sustainability indicators in connection with the SDGs the company decided to prioritise on and these three megatrends.

Have a look at the Ayala 2020 full report here https://drive.google.com/file/d/1DvA7A0F_yk06NQbCflpVz8QQzj5Zx5e8/view

What trends/pillars are important in your country?



Images taken from https://drive.google.com/file/d/1DvA7A0F_yk06NQbCflpVz8QQzj5Zx5e8/view

C. Video

The following Tedx talk is by Marian Spier, a social entrepreneur, who while consulting multiple organisations globally, he identified 5 principles to help professionals find out how to become game changers and create impact.

Question: What are the 5 principles of social impact, according to Marian Spier?

https://www.youtube.com/watch?v=vsQJ2Y_F0ZY

C. Video (answer)

1. **Chance:** You have to create an opportunity
2. **Clarity:** You have to strategize
3. **Craze:** You need to have a passion for what you do
4. **Courage:** You need to have an entrepreneurial mindset
5. **Considerate and determined:** You need to be purposeful, and meaningful in everything you do

D. Learning activity

Based on the goals and indicators you decided on the previous 2 topics, set a list of desired outcomes and impacts on the 4 levels of:

- marketplace
- workplace
- environment
- society

How do they relate to each other?

E. Hints/Tips

Use existing frameworks/tools to help you assess the impact of your sustainability strategy such as GRI or SROI.

F. Conclusion

Assessing the impact of sustainability initiatives is important not only for the companies and to their relevant stakeholders but also for the realisation of the SDGs. There's a number of tools readily available that can assist a business to measure and assess the impact of their sustainability strategy.

8. Topic 3- Setting, Measuring and Assessing Sustainability Goals – The case of the SDGs

A. Theory

- Launched in September 2015 by a UN Summit held in NY, the UN 2030 Agenda envisages “a world of universal respect for human rights and human dignity, the rule of law, justice, equality and non-discrimination”. (see “Transforming our world”: the 2030 Agenda for Sustainable Development <https://sdgs.un.org/2030agenda>)

The agenda identifies a core set of 17 SDGs and 169 targets

The Goals and targets will stimulate organizations across the world helping them to carry out, measure and assess their actions in the domain of sustainability, and more in detail about:

- People; Planet; Prosperity; Peace; Partnership

Several KPIs shared across the SDGs and across the typical dimensions of “sustainability”



Each SDG contains targets and measures, thereby clarifying how to align the phases of setting, measuring and assessing sustainability goals.

As an example: Goal: SDG 11 – *Sustainable Cities and Communities*

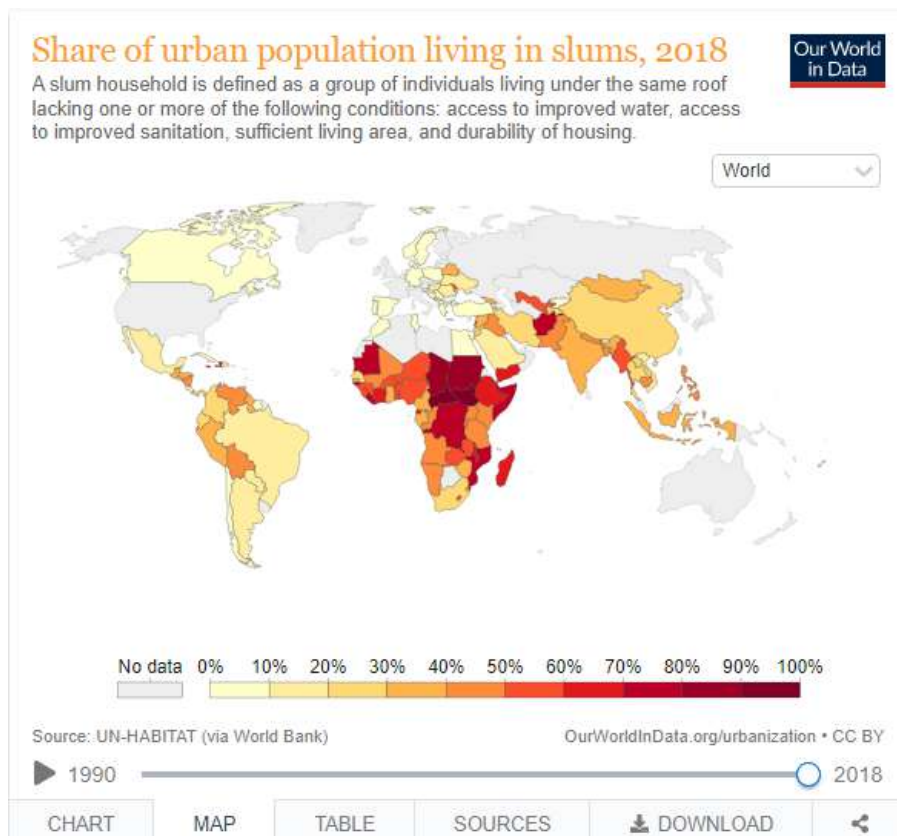
Target 11.1. By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

Indicator 11.1.1: Proportion of urban population living in slums, informal settlements, or inadequate housing

B. Case study

Consider the **Goal: SDG 11 *Sustainable Cities and Communities***

The figure displays the updated information available worldwide for 2018.



Source: <https://sdg-tracker.org/cities>

C. Data and dynamics

Consider the **Goal: SDG 11 *Sustainable Cities and Communities***

- Connect to <https://sdg-tracker.org/cities> and navigate the map.
- Think about the dynamics of this phenomenon (evolution over time) and how the indicators can provide a quantitative representation of this situation
- Then, look at the Table and inspect data for specific countries

D. Learning activity 1-

Consider the **Goal: SDG 11 Sustainable Cities and Communities**

- Try to model part of this system, starting from the main goal you aim to consider, the key relevant variables within the system and the feasible measures/indicators that can be used.
- Subsequently, <https://exchange.iseesystems.com/public/millenniuminstitute/isdg-20/index.html#page2> and explore how to design effective policies and measure the results thereby obtained interacting with a System Dynamics-based simulator.

D. Learning activity 2

Based on the goals and indicators you decided on the previous 2 topics, set a list of desired outcomes and impacts on the 4 levels of:

- marketplace
- workplace
- environment
- society

How do they relate to each other?

E. Hints/Tips -

Look for the key variables within the system and inspect their relationships.

Step by step, analyse the indicators that are identified by the UN Agenda 2030 for each specific SDG.

Discuss subsequently which quantitative measures are needed in this domain and which is their meaning in order to assess if organizations are approaching the targets set for each of the SDGs.

F. Conclusion

The phases of identifying, measuring and assessing sustainability targets are to be aligned and cannot be thought of as separate, independent processes.

Additionally, all the dimensions entailed by the concept of sustainability should be typically considered, represented, and discussed.

9. Conclusion

Setting, measuring and assessing sustainability goals is and should be essential for every organisation.

When setting sustainability goals, it's important to incorporate it into the business strategy as well as align these goals to SDGs. After setting meaningful and realistic goals, a company should decide on what performance indicators can be used to measure those goals and their desired social impact. Finally, a business should be transparent about the achievement or partial achievement of these goals by reporting the results and assessing the impact of their efforts.

10. Quiz

1. What's important when setting up sustainability goals?

- Using a systems thinking approach
- Aligning the goals to the business strategy
- Aligning the goals to SDGs
- All of the above

2. What does Theory of Change (ToC) refer to?

- A methodology used for planning, implementing and evaluating a desired social change
- A methodology used for planning, implementing and evaluating sustainability
- A methodology used for planning, implementing and evaluating corporate social responsibility

3. What does KPIs stand for?

- Key Priority Indicators
- Key Performance Indicators
- Key Precision Indicators

4. SDG Compass is a tool for:

- Aligning business indicators to sustainability indicators
- Aligning business indicators to SDG goals
- Aligning SDG indicators to Key Performance Indicators

5. What does SROI stand for?

- Social Responsibility of Investment
- Social Return on Investment

10. Quiz (answers)

1. What's important when setting up sustainability goals?

- Using a systems thinking approach
- Aligning the goals to the business strategy
- Aligning the goals to SDGs
- All of the above

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- Aligning SDG indicators to Key Performance Indicators

5. What does SROI stand for?

- Social Responsibility of Investment
- Social Return on Investment

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