



# Introduction to Sustainability

ESD Leadership Training Script Session 1.2

UNESCO GAP PN4 Flagship Project

# Introduction to Sustainability

The aim of this session is to provide with all participants with a shared foundation knowledge in sustainability so that when we come together in person for the workshop, we can delve deeper and move faster into ESD Leadership. This individual online course is designed to take 4-5 hours, and is a prerequisite to attending the in person workshop.

## The Context

Nowadays it's no secret that our modern practices are shockingly unsustainable. We are using natural resources at an irreparably damaging rate, polluting the air, water and land which we (and all other species) depend on to survive. The rate at which we are burning fossil fuels is raising the global temperature of Earth resulting in terrible natural disasters and unlivable habitats. We are producing absurd amounts of non-organic waste with no plan for management or change in production and consumption and continue to base our global market economy on a model of infinite growth, despite a finite planet and resources.

## Watch:

Over 4,600 billion years were necessary for evolution to shape life as it can be seen today. However, over the last 300 years, since the Industrial Revolution, the rate of destruction of all natural resources is far faster than the creation rate.

- Please watch 'The History of our World in 18 Minutes'  
[https://www.ted.com/talks/david\\_christian\\_big\\_history](https://www.ted.com/talks/david_christian_big_history) (Christian, 2011)
- Please watch 'The Earth is Full.'  
[http://www.ted.com/talks/paul\\_gilding\\_the\\_earth\\_is\\_full#t-277432](http://www.ted.com/talks/paul_gilding_the_earth_is_full#t-277432) (Gliding, 2012)

Due to this reality it is clear that humanity needs to change the dominant relationship that it has developed with the environment, acquire an attitude of humility due to our dependence on all natural resources and re-think the development ideals that we have set. In short, humanity needs to move away from the dominant worldview that considers humans separate from nature, where nature is seen as a collection of resources to use and take advantage of, without considering the intricate relationships that all living beings, including humans, have which are fundamental for sustaining life on Earth. We need a paradigm shift towards sustainability, which is not only a matter of adjusting our daily practices but an exercise of self-evaluation and recognizing our place within the systems of life.

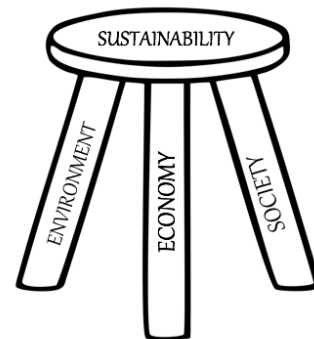
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## A New Concept: Sustainability

Sometimes, sustainability is mistakenly assumed to refer only to the environment. It has often been defined as how biological systems endure and remain diverse and productive. But, the actual definition goes far beyond those narrow parameters. The idea of sustainability actually stems from the concept of sustainable development (HCE Global Learning Center, 2009)

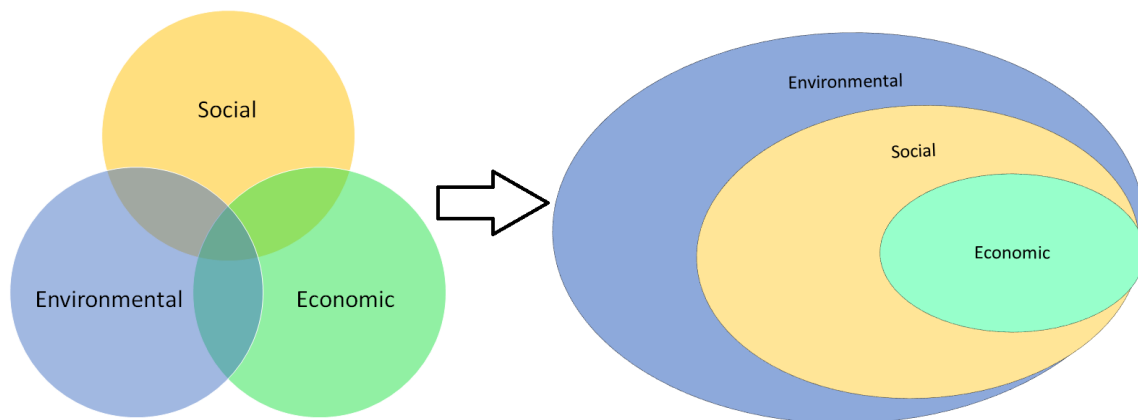
The United Nations 1987 Brundtland Commission Report, also known as "Our Common Future" noted that sustainable development is that type of development that 'meets the needs of the present without compromising the wellbeing of future generations' (World Commission on Environment and Development, 1987). The report describes three dimensions of sustainability: environmental, economic, and social-political.

1. The environmental component recognizes the interdependence of living systems and finite natural resources.
2. The economic component defines the flow of human capital and man-made resources as well as the parameters of work and productive human activity.
3. The socio-political component refers to the relationships between human institutions, systems and collective decision-making.



In short, this report refers to sustainability as a "balancing act".

While looking at these three dimensions as interconnected is a big improvement from a reductionist paradigm, systems thinkers are pushing the concept a step further.



(UNESCO, 2012)

The conceptual framework on the right recognizes that the economic system only exists within, and is dependent upon, our social system; the economy is created and maintained by societies. Similarly, that social system is dependent upon and existing within the parameters of the environment. These are not three separate spheres with some overlap; these are systems that are embedded within other systems.

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## Definitions

Stemming from the concept of sustainability, many different interpretations and definitions have emerged. Some examples of other definitions for the sustainability concept are:

‘...a process which enables all people to realize their potential and to improve their quality of life in ways which protect and enhance the Earth's life support systems.’

(Forum for the Future, UK as cited in Laitinen, 2010)

‘Improving the quality of life within the carrying capacity of supporting ecosystems’

(UNEP, WWF, IUCN, 1991 as cited in Laitinen, 2010)

‘Enough for everyone, forever’

(Billboard, Johannesburg, South Africa in 2002 during World Summit on Sustainable Development as cited in Laitinen, 2010)

‘In every deliberation we must consider the impact on the seventh generation’ (The Great Law of the Six Nations Iroquois Confederation as cited in UNESCO, 2006.)

## Watch

Please watch ‘Sustainability in 2 Minutes.’ <https://www.youtube.com/watch?v=Doeb6QWJ5kA>  
(Bigwood, 2010)

## Discussion Board

Based on the definitions offered here, others you may have heard, and considering your own ideas and understanding, what is your version of a definition of sustainability? Consider wording your definition in a way that is accessible to people of different backgrounds and ages.

Please post in the discussion board below.

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## The Sustainable Development Goals

'We cannot just add sustainable development to our current list of things to do but must learn to integrate the concepts into everything that we do.'

(The Dorset Education for Sustainability Network, 2016)

In response to the imminent necessity of sustainability and the unsustainability of current practices, on September 25th 2015 the international community came together for the UN Sustainable Development Summit to create a sustainable development agenda for the next 15 years with particular focus on ending poverty, protecting the planet, and ensuring prosperity for sustainable development. This agenda outlines 17 ambitious goals known as the SDG's (Sustainable Development Goals).



(UN, 2016).

The SDG's are the result of two processes inside the UN system, that were effectively combined to generate this unified Development Agenda. First, the SDGs were proposed at the UN Rio+20 Summit, as a set of goals to guide development plans in the countries. In parallel, the time was coming to give continuation to the Millennium Development Goals (MDGs) that were set in September 2000 at the United Nations headquarters by leaders of 189 countries and had a target date of 2015. The MDGs were a set of eight measurable goals that ranged from halving extreme poverty and hunger to promoting gender equality and reducing child mortality.

The MDGs were revolutionary in providing a common language to reach global agreement, but their focus was to guide international aid efforts and were only applicable to developing countries. Although substantial progress was made, by 2015 the achievements had been uneven. Consequently, a new Development Agenda focusing on building a sustainable world where environmental sustainability, social inclusion, and economic development are equally valued was necessary. In a broad consultation process during 2013 and 2014, led by the UN General Assembly and the Office of the Secretary General, these two initiatives were combined with the idea to have one Development Agenda that would be applicable to all countries of the world. Therefore, in 2015, the SDGs were set. The SDGs carry on the momentum generated by the MDGs and Rio+20 and layout a global development framework for 2015-2030 (UN, 2016).

For the goals to be reached, everyone needs to do their part: governments, the private sector, civil society, and individuals.

## **Watch:**

Please watch these two videos to learn more about the SDGs.

1. Transitioning from the MDGs to the SDGs

[https://www.youtube.com/watch?v=5\\_hLuEui6ww](https://www.youtube.com/watch?v=5_hLuEui6ww) (UNDP, 2015)

2. The World's Largest Lesson Introduced by Malala Yousafzai

[https://www.youtube.com/watch?v=ry\\_9SU0eq9M](https://www.youtube.com/watch?v=ry_9SU0eq9M) (Saorín, 2015)

## **Quiz:**

Here is a short quiz that takes you on a tour of the Sustainable Development Goals. This quiz will test your knowledge ... or, if you have not read the Goals closely, the Quiz will teach you about the SDGs.

<http://17goals.org/quiz-level-1/> (17Goals, 2015).

## **Discussion Board**

Please pick one SDG that is related to an area you are passionate about. Now choose one SDG that you haven't given much thought to before. What is one way in which these two goals are related?

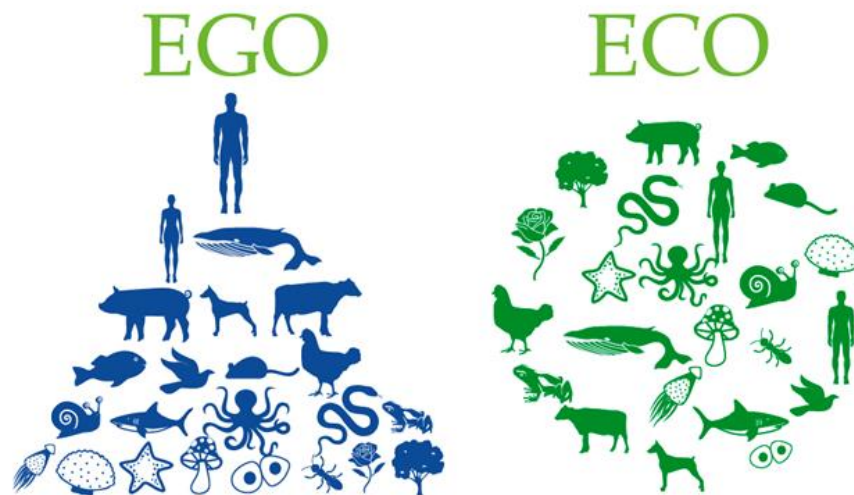
Please post in the discussion board below.

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## The Need for a Paradigm Shift

The modern paradigms which drive and reward profits and power have led to enormous destruction and unsustainable practices. These dominant paradigms have largely shaped our perception of the world, our idea of success, our educational and career opportunities and much more. To shift our lifestyles and transform our institutions, we will also need to shift our paradigm, or mental model.

When you hear “ecoliteracy,” what do you think of? You’re familiar of course with “literacy” or the ability to read and write—to understand and communicate in a certain language. You’re also probably familiar with “eco,” short for “ecology.” In the Merriam-Webster dictionary (2016), ecology is defined as “a science that deals with the relationships between groups of living things and their environments.” Therefore, ecoliteracy is basically the ability to understand the natural systems that make life on earth possible. Humans, along with all other forms of life, need food, water, space and stable conditions to survive. Fritjof Capra (2009), one of the founders of the Center for Ecoliteracy, writes that we need to learn and teach “the fundamental facts of life—that one species’ waste is another species’ food; that matter cycles continually through the web of life; that the energy driving the ecological cycles flows from the sun; that diversity assures resilience; that life (as suggested by Lynn Margulis and Dorion Sagan) did not take over the planet by combat but by networking.”



Rather than viewing humans as separate or superior to other life, we require a shift in perspective to recognizing that humans are part of the natural world. By recognizing the common needs we share with all organisms, we can begin to shift our perspective from a view of humans as separate and superior to a more authentic view of humans as members of the natural world in relationship

with all living things. From there, we can begin to empathize with other life forms and act accordingly.

“We are not fighting for environmental rights. We are not fighting to ‘save the planet’. We are Mother Nature protecting herself.” -Tiokasin Ghosthorse of the Lakota peoples (personal communication, November 2016)

Through an ecoliteracy lens, we humans can understand the logic behind sustainability and its relevance for the stability of the planet.

### Read:

Becoming Ecoliterate: Five Ecoliterate Practices <http://www.ecoliteracy.org/essays/five-ecoliterate-practices> (Center for Ecoliteracy, 2012).

Applying Ecological Principle <https://www.ecoliteracy.org/article/applying-ecological-principles> (Stone, 2012).

### Quiz:

Please take this quick quiz to gauge your current level of ecoliteracy (adapted from Kelly, 2005). You can keep track of how many you can answer.

1. Point north.
2. What time is sunset today?
3. When you flush, where do the solids go? What happens to the wastewater?
4. How many feet above sea level are you?
5. How far do you have to travel before you reach a different watershed? Can you draw the boundaries of yours?
6. Is the soil under your feet, more clay, sand, rock or silt?
7. Before you lived here, what did the previous inhabitants eat and how did they sustain themselves?
8. Name five native edible plants in your neighborhood and the season(s) they are available.
9. From what direction do storms generally come?
10. Where does your garbage go?
11. Right here, how deep do you have to drill before you reach water?
12. Which (if any) geological features in your watershed are, or were, especially respected by your community, or considered sacred, now or in the past?
13. How many days is the growing season here?
14. Name five birds that live here.
15. What was the total rainfall here last year?
16. Where does the pollution in your air come from?
17. What minerals are found in the ground here that are (or were) economically valuable?



18. Where does your electric power come from and how is it generated?
19. Where is the nearest wilderness? When was the last time a fire burned through it?
20. How many days till the moon is full?

## Reflect

How did you do on the quiz? Where did you learn the knowledge which helped you on the quiz? Why don't you know some of the answers?

Richard Luv (2011) came up with a concept known as "Nature Deficit Disorder", a term introduced not as a medical diagnosis, but as a way to describe the growing gap between children and nature. Nowadays, most of the human population (54%) live in urban areas and 50% of the population has access to Internet (Camargo, 2015). The world has more technology and urbanization than ever, and we are spending less time forming connections with nature.

How does our education reinforce or correct for that deficit?

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## Education for Sustainable Development (ESD)

In order to transform our societies into societies which are just, peaceful, and sustainable, we need a new paradigm. In order to move towards a paradigm which respects and cares for the community of life, we will need a transformation of the concept and systems of education. The concept of Education for Sustainable Development, or ESD, is education to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future.

ESD is education that enables people to predict and respond to the challenges that life faces on our planet. Therefore, in schools ESD should not be covered as another subject, but as an holistic concept that is integral to all aspects of the curriculum (ESD-Expert Net, 2012). Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way. (UNECE, 2011)

*'If you want to build a ship, don't drum up the men to gather wood, divide the work, and give them orders. Instead, teach them to yearn for the vast and endless sea.'* -Antoine de Saint-Exupéry (1959)

## Additional Resources:

Teaching and Learning for a Sustainable Future is a UNESCO programme for the United Nations Decade of Education for Sustainable Development. It provides professional development for student teachers, teachers, curriculum developers, education policy makers, and authors of educational materials.

<http://www.unesco.org/education/tlsf/> (UNESCO, 2010)

Education for Sustainable Development Toolkit

(<http://unesdoc.unesco.org/images/0015/001524/152453eo.pdf>) (McKeown et al., 2006)

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## Sustainability Education Tools

Many tools have been developed to learn about and measure our sustainable and unsustainable practices and individuals and societies and their impact on the Earth.

### *Earth Overshoot Day*

In 2016, August 8 marked the day that humans began to use more from nature than our planet can renew in a year. Every. Each year, the Global Footprint Network calculates the date when humanity's demand for ecological resources and services in a given year exceeds what Earth can regenerate in that year.

Since the 1970s, humanity has been in ecological overshoot with annual demand on resources exceeding what Earth can regenerate each year.

It now takes the Earth one year and six months to regenerate what we use in a year (Global Footprint Network, 2016).

### Watch:

Earth Overshoot day in 2016 was on August 8.

<https://youtu.be/zMvpAz38qSo> (Sustainability Illustrated, 2016)

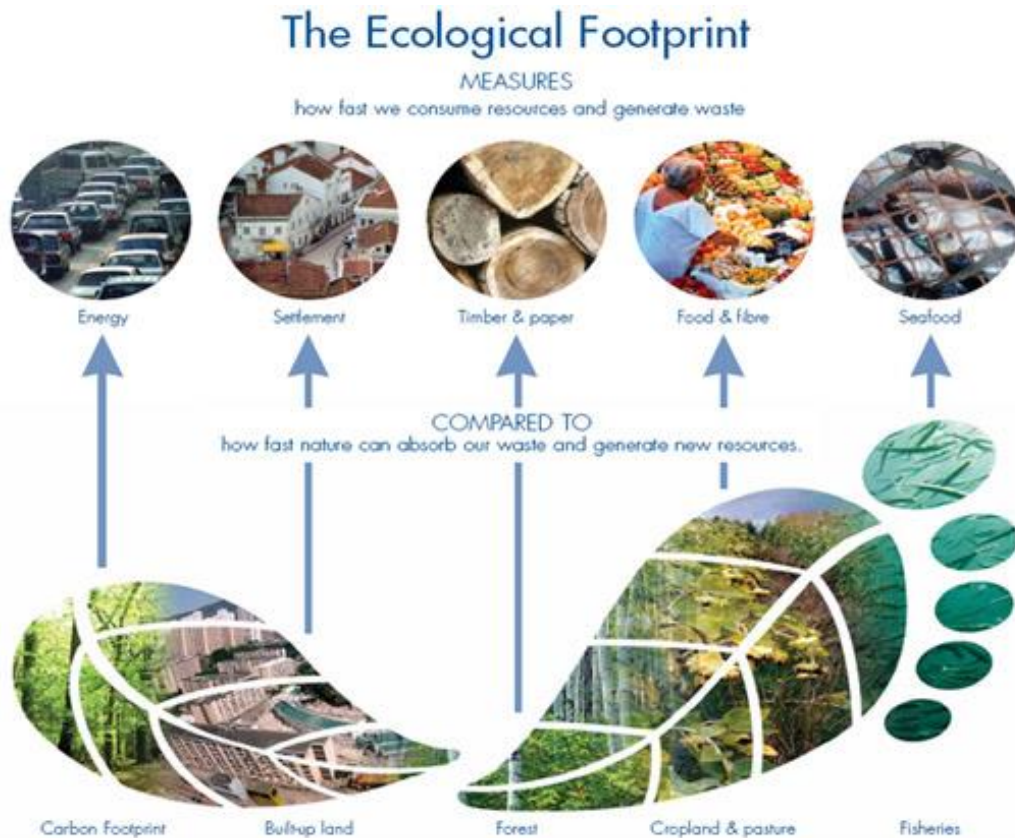
### Check:

<http://www.overshootday.org>

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## Carbon Footprint Calculator

The Carbon Footprint (Global Footprint Network, 2016) represents 60% of humanity's overall Ecological Footprint and is its most rapidly growing component. Humanity's Carbon Footprint has increased 11-fold since 1961. Reducing humanity's Carbon Footprint is the most essential step we can take to end overshoot and live within the means of our planet (Global Footprint Network, 2016).



This Carbon Footprint Calculator translates the amount of carbon dioxide our regular activities emit into the amount of productive land and sea area required to sequester carbon dioxide emissions. This tool calculates our individual carbon emissions based on our lifestyle choices and allows us to compare our impact with that of other people and other countries.

Try the following carbon footprint calculator\*:

<http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/> (Global Footprint Network, 2016)

\*If your country is not available on the map, please select a country that may be similar to yours in terms of lifestyle and development. This is an imperfect calculation, but can generate valuable

reflections.

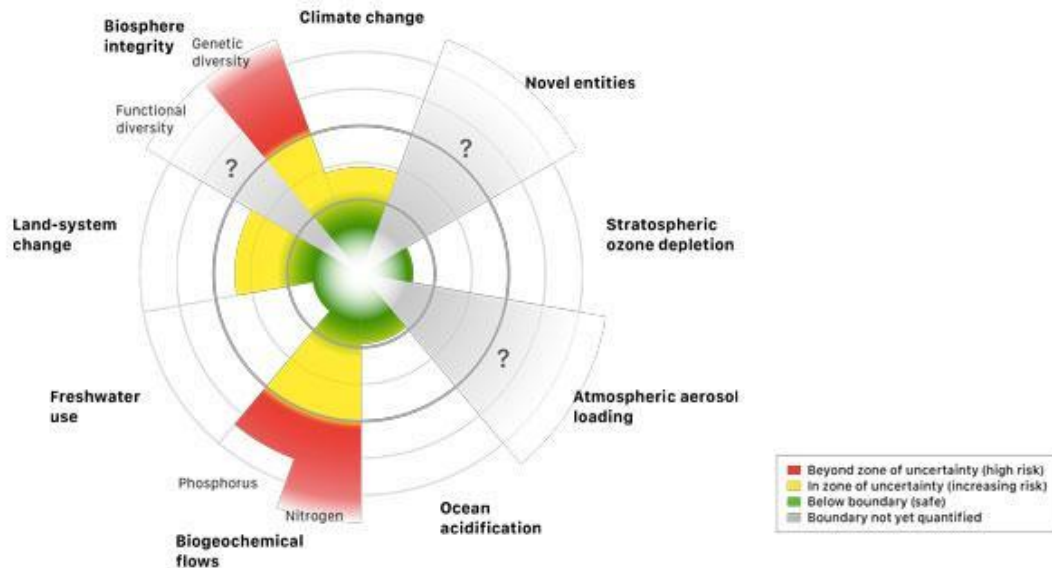


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### *Planetary Boundaries*

Both the Earth Overshoot Day and the Carbon Footprint Calculator illuminate our steadily increasing damage and strain on the planet. However, these concepts do not account for the possibility there we may reach limits, pushing the planet past its tipping point where it could regenerate and recover.

The planetary boundaries concept, introduced in 2009 by a group of 28 internationally acclaimed scientists, aimed to define and quantify the environmental limits within which humanity can safely operate. The original concept presents a set of nine planetary boundaries within which humanity can continue to develop and thrive. However, crossing these boundaries could generate abrupt or irreversible environmental changes with catastrophic consequences (Stockholm Resilience Center, 2016).



In the image above, you can see estimates of how the different control variables for seven planetary boundaries have changed from 1950 to present. The green shaded polygon represents the safe operating space. (Steffen et al., 2015 as cited in Stockholm Resilience Center, 2016)

## Additional Reading

The Nine Planetary Boundaries

<http://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html>

(Stockholm Resilience Center, 2016)

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## *The Happy Planet Index*

Gross Domestic Product (GDP) is a standard measurement that has become used internationally to gauge how well a country is doing in the international arena. GDP measures the market value of goods and services produced within a country during a certain period. Have we considered that included in this figure is weapons produced, oil pipelines built, and wars waged? Is this how we should measure growth and progress?

The Happy Planet Index measures what matters: sustainable wellbeing for all. It tells us how well nations are doing at achieving long, happy, sustainable lives. The Happy Planet Index provides a compass to guide nations, and shows that it is possible to live good lives without costing the Earth (New Economics Foundation, 2016).

The Happy Planet Index is based on the following 4 elements:



**Wellbeing:** Satisfaction with life overall.



**Life expectancy:** Number of years a person is expected to live.



**Inequality:** The inequalities between people within a country.



**Ecological Footprint:** Impact on the environment.

$$\text{HPI} = \frac{\text{Wellbeing} \times \text{Life expectancy}}{\text{Ecological Footprint} \times \text{Inequality}}$$

(New Economics Foundation, 2016).

How and what we measure shapes policies, laws, and culture. The Happy Planet Index is one model of measuring what matters so that we are driving creativity, innovation, and investment in the direction of well-being.

What do you think of this model? Is there something you would want to measure that isn't included here?

## Watch

Please watch 'The Happy Planet Index' Ted Talk

[http://www.ted.com/talks/nic\\_marks\\_the\\_happy\\_planet\\_index](http://www.ted.com/talks/nic_marks_the_happy_planet_index) (Marks, 2010)

## Check

Explore data and rankings for the HPI. Is your country ranked? How does it compare with neighboring countries and the world average? <http://happyplanetindex.org/countries>

## Workshop Preparation

The ESD Leadership Training is composed of three main parts. First, the online pre-session which you are finishing now. Second, a two-day in person training with other young leaders. Finally, a follow-up session that involves an online component as well as facilitating a workshop locally. Since you will only have one month after the training to conduct your workshop, it is essential that you begin considering where and with whom you could carry it out. Possibilities may include coworkers at your organization/company, kids at a local school, classmates at your university, members of an organization you're part of, etc.

The 1-3 hour workshop will educate for sustainability development. Under that broad umbrella, you can choose a focus area and integrate learnings from this training with specific areas of interest important to you and your participants.

We look forward to meeting in person for the next phase of the training—the in person workshop!

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## Additional Resources

To keep exploring sustainability in theory and practice, check out these additional resources:

- TED talk playlist, Sustainability by Design  
[https://www.ted.com/playlists/28/sustainability\\_by\\_design](https://www.ted.com/playlists/28/sustainability_by_design)
  - Videos to learn and teach Sustainable Development  
<http://sustainabilityillustrated.com/en/sustainability-videos/>
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