United Nations
Educational, Scientific and
Cultural Organization

Sustainable
Development
Goals

Education for Sustainable Development Goals

Learning Objectives



Education 2030

Education for Sustainable Development Goals

Learning Objectives

UNESCO Education Sector

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United Nations
Educational, Scientific and
Cultural Organization

Education
Sector

Education 2030

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Foreword

UNESCO has been promoting Education for Sustainable Development (ESD) since 1992. It led the UN Decade for ESD from 2005 to 2014 and is now spearheading its follow-up, the Global Action Programme (GAP) on ESD.

The momentum for ESD has never been stronger. Global issues – such as climate change – urgently require a shift in our lifestyles and a transformation of the way we think and act. To achieve this change, we need new skills, values and attitudes that lead to more sustainable societies.

Education systems must respond to this pressing need by defining relevant learning objectives and learning contents, introducing pedagogies that empower learners, and urging their institutions to include sustainability principles in their management structures.

The new 2030 Agenda for Sustainable Development clearly reflects this vision of the importance of an appropriate educational response. Education is explicitly formulated as a stand-alone goal – Sustainable Development Goal 4. Numerous education-related targets and indicators are also contained within other Sustainable Development Goals (SDGs).

Education is both a goal in itself and a means for attaining all the other SDGs. It is not only an integral part of sustainable development, but also a key enabler for it. That is why education represents an essential strategy in the pursuit of the SDGs.

This publication is designed as a guide for education professionals on the use of ESD in learning for the SDGs, and consequently to contribute to achieving the SDGs. The guide identifies indicative learning objectives and suggests topics and learning activities for each SDG. It also presents implementation methods at different levels, from course design to national strategies.

The guide does not aim to be prescriptive in any way, but to provide guidance and suggestions that educators can select and adapt to fit concrete learning contexts.

I am confident that this guide will help to develop sustainability competencies for all learners and empower everyone to contribute to achieving our ambitious and crucial global agenda.



Qian Tang, Ph.D.
Assistant Director-General for Education

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List of acronyms

DESD	UN Decade of Education for Sustainable Development
ESD	Education for Sustainable Development
GAP	Global Action Programme on Education for Sustainable Development
GCED	Global Citizenship Education
ICT	Information and Communication Technology
LCA	Life Cycle Analysis
NGO	Non-Governmental Organization
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
SDGs	Sustainable Development Goals
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization

Introduction

Introduction

1. The Sustainable Development Goals – an ambitious and universal agenda to transform our world

On 25 September 2015, the UN General Assembly adopted the 2030 Agenda for Sustainable Development (UN, 2015). This new global framework to redirect humanity towards a sustainable path was developed following the United Nations Conference on Sustainable Development (Rio+20) in Rio de Janeiro, Brazil in June 2012, in a three-year process involving UN Member States, national surveys engaging millions of people and thousands of actors from all over the world.

At the core of the 2030 Agenda are 17 Sustainable Development Goals (SDGs). The universal, transformational and inclusive SDGs describe major development challenges for humanity. The aim of the 17 SDGs (see box 1.1) is to secure a sustainable, peaceful, prosperous and equitable life on earth for everyone now and in the future. The goals cover global challenges that are crucial for the survival of humanity. They set environmental limits and set critical thresholds for the use of natural resources. The goals recognize that ending poverty must go hand-in-hand with strategies that build economic development. They address a range of social needs including education, health, social protection and job opportunities while tackling climate change and environmental protection. The SDGs address key systemic barriers to sustainable development such as inequality, unsustainable consumption patterns, weak institutional capacity and environmental degradation.

For the goals to be reached, everyone needs to do their part: governments, the private sector, civil society and every human being across the world. Governments are expected to take ownership and establish national frameworks, policies and measures for the implementation of the 2030 Agenda.

A key feature of the 2030 Agenda for Sustainable Development is its universality and indivisibility. It addresses all countries – from the Global South and the Global North – as target countries. All countries subscribing to the 2030 Agenda are to align their own development efforts with the aim of promoting prosperity while protecting the planet in order to achieve sustainable development. Thus, with respect to the SDGs, all countries can be considered as developing and all countries need to take urgent action.

Box 1. The 17 Sustainable Development Goals (SDGs)

1. No Poverty – End poverty in all its forms everywhere
2. Zero Hunger – End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Good Health and Well-Being – Ensure healthy lives and promote well-being for all at all ages
4. Quality Education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Gender Equality – Achieve gender equality and empower all women and girls
6. Clean Water and Sanitation – Ensure availability and sustainable management of water and sanitation for all
7. Affordable and Clean Energy – Ensure access to affordable, reliable, sustainable and clean energy for all
8. Decent Work and Economic Growth – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Industry, Innovation and Infrastructure – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. Reduced Inequalities – Reduce inequality within and among countries
11. Sustainable Cities and Communities – Make cities and human settlements inclusive, safe, resilient and sustainable
12. Responsible Consumption and Production – Ensure sustainable consumption and production patterns
13. Climate Action – Take urgent action to combat climate change and its impacts
14. Life below Water – Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Life on Land – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Peace, Justice and Strong Institutions – Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Partnerships for the Goals – Strengthen the means of implementation and revitalize the global partnership for sustainable development

Source: http://www.un.org/sustainabledevelopment/sustainable-development-goals

2 Education for Sustainable Development – a key instrument to achieve the SDGs

"A fundamental change is needed in the way we think about education's role in global development, because it has a catalytic impact on the well-being of individuals and the future of our planet. … Now, more than ever, education has a responsibility to be in gear with 21st century challenges and aspirations, and foster the right types of values and skills that will lead to sustainable and inclusive growth, and peaceful living together."

Irina Bokova, Director-General of UNESCO

"Education can, and must, contribute to a new vision of sustainable global development."

(UNESCO, 2015)

Embarking on the path of sustainable development will require a profound transformation of how we think and act. To create a more sustainable world and to engage with sustainability-related issues as described in the SDGs, individuals must become sustainability change-makers. They require the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Education, therefore, is crucial for the achievement of sustainable development. However, not all kinds of education support sustainable development. Education that promotes economic growth alone may well also lead to an increase in unsustainable consumption patterns. The now well-established approach of Education for Sustainable Development (ESD) empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society for present and future generations.

ESD aims at developing competencies that empower individuals to reflect on their own actions, taking into account their current and future social, cultural, economic and environmental impacts, from a local and a global perspective. Individuals should also be empowered to act in complex situations in a sustainable manner, which may require them to strike out in new directions; and to participate in socio-political processes, moving their societies towards sustainable development.

ESD has to be understood as an integral part of quality education, inherent in the concept of lifelong learning: All educational institutions – from preschool to tertiary education and in non-formal and informal education – can and should consider it their responsibility to deal intensively with matters of sustainable development and to foster the development of sustainability competencies. ESD provides an education that matters and is truly relevant to every learner in the light of today's challenges.

ESD is holistic and transformational education that addresses learning content and outcomes, pedagogy and the learning environment. Thus, ESD does not only integrate contents such as climate change, poverty and sustainable consumption into the curriculum; it also creates interactive, learner-centred teaching and learning settings. What ESD requires is a shift from teaching to learning. It asks for an action-oriented, transformative pedagogy, which supports self-directed learning, participation and collaboration, problem-orientation, inter- and transdisciplinarity and the linking of formal and informal learning. Only such pedagogical approaches make possible the development of the key competencies needed for promoting sustainable development.

International recognition of ESD as a key enabler for sustainable development has been growing steadily. ESD was acknowledged as such at the three seminal global sustainable development summits: the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro; the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa; and the 2012 UN Conference on Sustainable Development (UNCSD), also in Rio de Janeiro, Brazil. ESD is also recognized in other key global agreements, such as the Paris Agreement (Article 12).

The United Nations Decade of Education for Sustainable Development (2005–2014) (DESD) aimed at integrating the principles and practices of sustainable development into all aspects of education and learning. It also aimed to encourage changes in knowledge, values and attitudes with the vision of enabling a more sustainable and just society for all. The Global Action Programme (GAP) on ESD, which was endorsed by UNESCO's 37th General Conference (November 2013), acknowledged by UN General Assembly Resolution A/RES/69/211 and launched on 12 November 2014 at the UNESCO World Conference on ESD in Aichi-Nagoya, Japan, strives to scale up ESD, building on the DESD.

Box 2. Target 4.7 of the SDGs

By 2030, ensure that all learners acquire knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

Source: United Nations, 2015

ESD is explicitly recognized in the SDGs as part of Target 4.7 of the SDG on education, together with Global Citizenship Education (GCED), which UNESCO promotes as a complementary approach[1]. At the same time, it is important to emphasize ESD's crucial importance for all the other 16 SDGs. With its overall aim to develop cross-cutting sustainability competencies in learners, ESD is an essential contribution to all efforts to achieve the SDGs, enabling individuals to contribute to sustainable development by promoting societal, economic and political change as well as by transforming their own behaviour. ESD can produce specific cognitive, socio-emotional and behavioural learning outcomes that enable individuals to deal with the particular challenges of each SDG, thus facilitating its achievement. In short, ESD enables all individuals to contribute to achieving the SDGs by equipping them with the knowledge and competencies they need, not only to understand what the SDGs are about, but to engage as informed citizens in bringing about the necessary transformation.

3. Who is this guidance for and how can it be used?

The publication intends to guide readers on how to use education, and in particular ESD, in achieving the SDGs. It identifies learning objectives, suggests topics and learning activities for each SDG, and describes implementation on different levels from course design to national strategies. The document aims to support policy-makers, curriculum developers and educators in designing strategies, curricula and courses to promote learning for the SDGs. The document is not prescriptive in any way, but provides guidance and offers suggestions for learning topics and objectives that educators can select and adapt to fit concrete learning contexts.

Educators can use this text as a resource when developing training, textbooks, massive open online course (MOOCs) and exhibitions. It can help teachers or curriculum designers in formal educational institutions, trainers in professional capacity-building programmes, or NGO staff designing non-formal educational offers. Policy-makers may find it helpful to consider core ideas about learning objectives for the SDGs when developing education policies or strategies. For some, this guidance may provide an introduction to the SDGs, ESD, and competency oriented teaching and learning approaches in ESD. For others, the guide and recommended additional resources may deepen their understanding of these concepts. It can also be used to build on existing work in ESD and related areas such as global citizenship education, human rights education, environmental education and others.

Because the target group is diverse and possible uses of this guidance are manifold, the learning objectives, topics and activities for each SDG are outlined on a general level. As general guidance, they are not tailored for any specific learner age groups, learning settings or national/socio-cultural context. They are designed to be relevant for all learners of all ages worldwide and to find their application in all sorts of learning settings, while in their concrete implementation they will, naturally, have to be adapted to the national or local context. For each learning objective, educators and curriculum developers must define the level to be achieved by their learners (e.g. from "basic" in primary education to "expertise" in tertiary education).

The learning objectives, topics and activities included in this guide should be viewed as general guidance; they are not exhaustive or definitive. While the learning objectives cover the necessary learning outcomes (including knowledge, skills, attitudes and behaviour) to support the achievement of the SDGs and are intended to be generally applicable around the world, they convey core ideas only. They must therefore be complemented by appropriate locally-relevant topics, and updated regarding the new issues that constantly emerge in our rapidly changing world. Some of the content may already be covered in existing education programmes. In this case, this text can be used as a complementary resource, or as a reference when reviewing or seeking to strengthen existing programmes.

The core part of the document summarizes the key competencies for learners to develop in ESD and outlines indicative learning objectives, topics and pedagogical approaches for each of the 17 SDGs. Subsequently, a shorter section provides guidance on implementation at different educational levels and in various settings.

1. Global Citizenship Education: Topics and learning objectives UNESCO, 2015 http://unesdoc.unesco.org/images/0023/002329/232993e.pdf

1. Learning objectives for achieving the SDGs

1. Learning objectives for achieving the SDGs

ESD can develop cross-cutting key competencies for sustainability that are relevant to all SDGs. ESD can also develop specific learning outcomes needed to work on achieving a particular SDG.

1.1. Cross-cutting key competencies for achieving all SDGs

As societies around the world struggle to keep pace with the progress of technology and globalization, they encounter many new challenges. These include increasing complexity and uncertainty; more individualization and social diversity; expanding economic and cultural uniformity; degradation of the ecosystem services upon which they depend; and greater vulnerability and exposure to natural and technological hazards. A rapidly proliferating amount of information is available to them. All these conditions require creative and self-organized action because the complexity of the situation surpasses basic problem-solving processes that go strictly according to plan. People must learn to understand the complex world in which they live. They need to be able to collaborate, speak up and act for positive change (UNESCO, 2015). We can call these people "sustainability citizens" (Wals, 2015; Wals and Lenglet, 2016).

There is general agreement that sustainability citizens need to have certain key competencies that allow them to engage constructively and responsibly with today's world. **Competencies** describe the specific attributes individuals need for action and self-organization in various complex contexts and situations. They include cognitive, affective, volitional and motivational elements; hence they are an interplay of knowledge, capacities and skills, motives and affective dispositions. Competencies cannot be taught, but have to be developed by the learners themselves. They are acquired during action, on the basis of experience and reflection (UNESCO, 2015; Weinert, 2001).

Key competencies represent cross-cutting competencies that are necessary for all learners of all ages worldwide (developed at different age-appropriate levels). Key competencies can be understood as transversal, multifunctional and context-independent. They do not replace specific competencies necessary for successful action in certain situations and contexts, but they encompass these and are more broadly focused (Rychen, 2003; Weinert, 2001).

The following key competencies are generally seen as crucial to advance sustainable development (see de Haan, 2010; Rieckmann, 2012; Wiek et al., 2011).

Box 1.1. Key competencies for sustainability

Systems thinking competency: the abilities to recognize and understand relationships; to analyse complex systems; to think of how systems are embedded within different domains and different scales; and to deal with uncertainty.

Anticipatory competency: the abilities to understand and evaluate multiple futures – possible, probable and desirable; to create one's own visions for the future; to apply the precautionary principle; to assess the consequences of actions; and to deal with risks and changes.

Normative competency: the abilities to understand and reflect on the norms and values that underlie one's actions; and to negotiate sustainability values, principles, goals, and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions.

Strategic competency: the abilities to collectively develop and implement innovative actions that further sustainability at the local level and further afield.

Collaboration competency: the abilities to learn from others; to understand and respect the needs, perspectives and actions of others (empathy); to understand, relate to and be sensitive to others (empathic leadership); to deal with conflicts in a group; and to facilitate collaborative and participatory problem solving.

Critical thinking competency: the ability to question norms, practices and opinions; to reflect on own one's values, perceptions and actions; and to take a position in the sustainability discourse.

Self-awareness competency: the ability to reflect on one's own role in the local community and (global) society; to continually evaluate and further motivate one's actions; and to deal with one's feelings and desires.

Integrated problem-solving competency: the overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solution options that promote sustainable development, integrating the above-mentioned competences.

The sustainability key competencies represent what sustainability citizens particularly need to deal with today's complex challenges. They are relevant to all SDGs and also enable individuals to relate the different SDGs to each other – to see "the big picture" of the 2030 Agenda for Sustainable Development.

The specific learning objectives outlined below are to be seen in conjunction with the cross-cutting sustainability competencies. For example, one specific learning objective for SDG 1, "No Poverty – End poverty in all its forms everywhere", can be defined as "The learner knows about causes and impacts of poverty". This knowledge could be acquired by conducting case studies on poverty in selected countries. At the same time, this learning activity contributes to a person's system thinking competency by facilitating the perception that multiple factors influence poverty. But system thinking competency is not limited to system thinking concerning poverty. As a key competency, it enables the learner to understand the complex interrelations in the fields of other SDGs as well.

It is vital to set specific learning objectives for the different SDGs. But we must also remember that these objectives must not be viewed as isolated from the sustainability key competencies that will support us in our transition to a sustainable world. Learning objectives and key competencies must be pursued together. The learning approaches and methods outlined in this document are therefore informed by best practice for developing competencies. When using this guidance framework, educators are encouraged to consider what key competencies their educational activities are facilitating, in addition to the specific learning objectives described for each SDG in the following section.

1.2. Specific learning objectives for the SDGs

What follows is the description of specific learning objectives for all SDGs. For each SDG, learning objectives are described in the cognitive, socio-emotional and behavioural domains.

The **cognitive domain** comprises knowledge and thinking skills necessary to better understand the SDG and the challenges in achieving it.

The **socio-emotional domain** includes social skills that enable learners to collaborate, negotiate and communicate to promote the SDGs as well as self-reflection skills, values, attitudes and motivations that enable learners to develop themselves.

The **behavioural domain** describes action competencies.

Additionally, for each SDG, indicative topics and pedagogical approaches are outlined.



1.2.1. SDG 1 | No Poverty | End poverty in all its forms everywhere

Table 1.2.1. Learning objectives for SDG 1 "No Poverty"

Cognitive learning objectives	1. The learner understands the concepts of extreme and relative poverty and is able to critically reflect on their underlying cultural and normative assumptions and practices. 2. The learner knows about the local, national and global distribution of extreme poverty and extreme wealth. 3. The learner knows about causes and impacts of poverty such as unequal distribution of resources and power, colonization, conflicts, disasters caused by natural hazards and other climate change-induced impacts, environmental degradation and technological disasters, and the lack of social protection systems and measures. 4. The learner understands how extremes of poverty and extremes of wealth affect basic human rights and needs. 5. The learner knows about poverty reduction strategies and measures and is able to distinguish between deficit-based and strength-based approaches to addressing poverty.
Socio-emotional learning objectives	1. The learner is able to collaborate with others to empower individuals and communities to affect change in the distribution of power and resources in the community and beyond. 2. The learner is able to raise awareness about extremes of poverty and wealth and encourage dialogue about solutions. 3. The learner is able to show sensitivity to the issues of poverty as well as empathy and solidarity with poor people and those in vulnerable situations. 4. The learner is able to identify their personal experiences and biases with respect to poverty. 5. The learner is able to reflect critically on their own role in maintaining global structures of inequality.
Behavioural learning objectives	1. The learner is able to plan, implement, evaluate and replicate activities that contribute to poverty reduction. 2. The learner is able to publicly demand and support the development and integration of policies that promote social and economic justice, risk reduction strategies and poverty eradication actions. 3. The learner is able to evaluate, participate in and influence decision-making related to management strategies of local, national and international enterprises concerning poverty generation and eradication. 4. The learner is able to include poverty reduction, social justice and anti-corruption considerations in their consumption activities. 5. The learner is able to propose solutions to address systemic problems related to poverty.

Box 1.2.1a. Suggested topics for SDG 1 "No Poverty"

Definitions of poverty

Global, national and local distribution of extreme poverty and extreme wealth and their reasons

The importance of social welfare protection systems and measures

The importance of equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

The interrelation of poverty, natural hazards, climate change and other economic, social and environmental shocks and stresses

Work conditions related to poverty such as sweatshops, child labour and modern slavery

Resilience of the poor and those in vulnerable situations

Consequences of poverty such as malnutrition, child and maternal mortality, crime and violence

Development cooperation

Policy frameworks at the local, national and international levels, based on pro-poor and gender-sensitive development strategies

Box 1.2.1b. Examples of learning approaches and methods for SDG 1 "No Poverty"

Develop partnerships between schools and universities in different regions of the world (South and North; South and South)

Plan and run an awareness campaign about poverty locally and globally

Plan and run a student company selling fair trade products

Plan and implement local service-learning and/or engagement opportunities for empowering poor people, reducing their vulnerability to different hazards and increasing their resilience – in collaboration with NGOs, the private sector and/or community groups, etc.

Conduct a case study on poverty and wealth in selected countries (through desktop research) or at the local level (through excursions, doing interviews, etc.)

Provide internships within organizations addressing poverty

Develop an enquiry-based project around: "Is poverty increasing or decreasing?"



1.2.2. SDG 2 | Zero Hunger | End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Table 1.2.2. Learning objectives for SDG 2 "Zero Hunger"

Cognitive learning objectives	1. The learner knows about hunger and malnutrition and their main physical and psychological effects on human life, and about specific vulnerable groups. 2. The learner knows about the amount and distribution of hunger and malnutrition locally, nationally and globally, currently as well as historically. 3. The learner knows the main drivers and root causes for hunger at the individual, local, national and global level. 4. The learner knows principles of sustainable agriculture and understands the need for legal rights to have land and property as necessary conditions to promote it. 5. The learner understands the need for sustainable agriculture to combat hunger and malnutrition worldwide and knows about other strategies to combat hunger, malnutrition and poor diets.
Socio-emotional learning objectives	1. The learner is able to communicate on the issues and connections between combating hunger and promoting sustainable agriculture and improved nutrition. 2. The learner is able to collaborate with others to encourage and to empower them to combat hunger and to promote sustainable agriculture and improved nutrition. 3. The learner is able to create a vision for a world without hunger and malnutrition. 4. The learner is able to reflect on their own values and deal with diverging values, attitudes and strategies in relation to combating hunger and malnutrition and promoting sustainable agriculture. 5. The learner is able to feel empathy, responsibility and solidarity for and with people suffering from hunger and malnutrition.
Behavioural learning objectives	1. The learner is able to evaluate and implement actions personally and locally to combat hunger and to promote sustainable agriculture. 2. The learner is able to evaluate, participate in and influence decision-making related to public policies concerning the combat against hunger and malnutrition and the promotion of sustainable agriculture. 3. The learner is able to evaluate, participate in and influence decision-making related to management strategies of local, national and international enterprises concerning the combat against hunger and malnutrition and the promotion of sustainable agriculture. 4. The learner is able to take on critically their role as an active global citizen in the challenge of combating hunger. 5. The learner is able to change their production and consumption practices in order to contribute to the combat against hunger and the promotion of sustainable agriculture.

Box 1.2.2a. Suggested topics for SDG 2 "Zero Hunger"

Definition of the concept of hunger and malnutrition

Groups that are particularly vulnerable to hunger and malnutrition

Main drivers and root causes of hunger and malnutrition, including the relation between climate change and food security and the depletion of soil quality

Consequences of hunger and malnutrition on the health and well-being of people, including practices like migration as adaptation

Physical, emotional and socio-cultural functions of food

Hunger in relation to food abundance, obesity and food waste

Global food – import, export, cash crops, international taxes, subsidies, trading systems, merits, risks and challenges of utilising genetically modified organisms (GMOs)

Institutions and movements related to hunger and sustainable agriculture like the UN's Food and Agriculture Organization (FAO), Foodwatch, Slow Food, community-based agriculture, the international movement Via Campesina, etc.

Concepts and principles of sustainable agriculture, including climate-resilient practices, organic farming, biodynamic farming, permaculture and agro-forestry

Biodiversity of seeds, plants and animals, particularly in relation to wild species

Box 1.2.2b. Examples of learning approaches and methods for SDG 2 "Zero Hunger"

Perform role-plays with small-scale producers versus big enterprises in a global market that is influenced by taxes, subsidies, tariffs, quotas, etc.

Carry out scenario development and analysis of local or national food production and consumption systems and/or about the impact of natural hazards and disasters in the food production systems

Carry out case study analyses of adequate and non-adequate public policies or management strategies of enterprises to combat hunger, reduce food waste and promote sustainable agriculture

Organize excursions and field trips to places where sustainable agriculture is practiced

Follow food from farm to fork – growing, harvesting and preparing food, e.g. in urban or school gardening projects

Engage students in efforts to connect leftover food with people in need

Conduct a Life Cycle Analysis (LCA) of food



1.2.3. SDG 3 | Good Health and Well-being |

Ensure healthy lives and promote well-being for all at all ages

Table 1.2.3. Learning objectives for SDG 3 "Good Health and Well-Being"

Cognitive learning objectives	1. The learner knows conceptions of health, hygiene and well-being and can critically reflect on them, including an understanding of the importance of gender in health and well-being. 2. The learner knows facts and figures about the most severe communicable and non-communicable diseases, and the most vulnerable groups and regions concerning illness, disease and premature death. 3. The learner understands the socio-political-economic dimensions of health and well-being and knows about the effects of advertising and about strategies to promote health and well-being. 4. The learner understands the importance of mental health. The learner understands the negative impacts of behaviours like xenophobia, discrimination and bullying on mental health and emotional well-being and how addictions to alcohol, tobacco or other drugs cause harm to health and well-being. 5. The learner knows relevant prevention strategies to foster positive physical and mental health and well-being, including sexual and reproductive health and information as well as early warning and risk reduction.
Socio-emotional learning objectives	1. The learner is able to interact with people suffering from illnesses, and feel empathy for their situation and feelings. 2. The learner is able to communicate about issues of health, including sexual and reproductive health, and well-being, especially to argue in favour of prevention strategies to promote health and well-being. 3. The learner is able to encourage others to decide and act in favour of promoting health and well-being for all. 4. The learner is able to create a holistic understanding of a life of health and well-being, and to clarify related values, beliefs and attitudes. 5. The learner is able to develop a personal commitment to promoting health and well-being for themselves, their family and others, including considering volunteer or professional work in health and social care.
Behavioural learning objectives	1. The learner is able to include health promoting behaviours in their daily routines. 2. The learner is able to plan, implement, evaluate and replicate strategies that promote health, including sexual and reproductive health, and well-being for themselves, their families and others. 3. The learner has the capacity to perceive when others need help and to seek help for themselves and others. 4. The learner is able to publicly demand and support the development of policies promoting health and well-being. 5. The learner is able to propose ways to address possible conflicts between the public interest in offering medicine at affordable prices and private interests within the pharmaceutical industry.

Box 1.2.3a. Suggested topics for SDG 3 "Good Health and Well-being"

Severe communicable and non-communicable diseases

Health problems of vulnerable groups and in the most vulnerable regions, and an understanding of how gender inequalities may affect health and well-being

Direct strategies to promote health and well-being, e.g. vaccines, healthy food, physical activity, mental health, medical consultation, education, sexual and reproductive health education including education about pregnancy avoidance and safer sex

Indirect strategies (public health) to promote health and well-being: e.g. political programmes for health insurances, affordable prices of medicine, health services including sexual and reproductive health care services, drug prevention, transfer of knowledge and technology, reduction of pollution and contamination, early warning and risk reduction

Philosophical and ethical conceptions of life quality, well-being and happiness

Sexual and reproductive health education including family planning

Discriminatory attitudes towards people living with HIV, other illnesses or mental disorders

Road traffic accidents

Overweight and obesity, insufficient physical activity and unhealthy food

Chemicals, pollution and contamination of air, water and soil

Box 1.2.3b. Examples of learning approaches and methods for SDG 3 "Good Health and Well-Being"

Set up an information stand in the city, e.g. on "World AIDS Day" (December 1)

Watch videos that show health promoting behaviours (e.g. using a condom for safer sex, saying "No" to drug offers…)

Participate in ethical, reflective essay writing and/or discussions about what a life of health and well-being means

Engage with story-telling by people with severe diseases, drug addictions, etc.

Organize training on health promotion and illness prevention strategies (e.g. participating in physical activities, preparing healthy food, applying a condom, installing a mosquito net, detecting and managing sources of waterborne diseases)

Conduct projects on epidemic and endemic disease – success vs. challenges (Malaria, Zika, Ebola, etc.)

Develop an enquiry-based project, 'Is living longer a good thing?'



1.2.4. SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Table 1.2.4. Learning objectives for SDG 4 "Quality Education"

Cognitive learning objectives	1. The learner understands the important role of education and lifelong learning opportunities for all (formal, non-formal and informal learning) as main drivers of sustainable development, for improving people's lives and in achieving the SDGs. 2. The learner understands education as a public good, a global common good, a fundamental human right and a basis for guaranteeing the realization of other rights. 3. The learner knows about inequality in access to and attainment of education, particularly between girls and boys and in rural areas, and about reasons for a lack of equitable access to quality education and lifelong learning opportunities. 4. The learner understands the important role of culture in achieving sustainability. 5. The learner understands that education can help create a more sustainable, equitable and peaceful world.
Socio-emotional learning objectives	1. The learner is able to raise awareness of the importance of quality education for all, a humanistic and holistic approach to education, ESD and related approaches. 2. The learner is able through participatory methods to motivate and empower others to demand and use educational opportunities. 3. The learner is able to recognize the intrinsic value of education and to analyse and identify their own learning needs in their personal development. 4. The learner is able to recognize the importance of their own skills for improving their life, in particular for employment and entrepreneurship. 5. The learner is able to engage personally with ESD.
Behavioural learning objectives	1. The learner is able to contribute to facilitating and implementing quality education for all, ESD and related approaches at different levels. 2. The learner is able to promote gender equality in education. 3. The learner is able to publicly demand and support the development of policies promoting free, equitable and quality education for all, ESD and related approaches as well as aiming at safe, accessible and inclusive educational facilities. 4. The learner is able to promote the empowerment of young people. 5. The learner is able to use all opportunities for their own education throughout their life, and to apply the acquired knowledge in everyday situations to promote sustainable development.

Box 1.2.4a. Suggested topics for SDG 4 "Quality Education"

Education as a public good, a global common good, a fundamental human right and a basis for guaranteeing the realization of other rights

The Education 2030 agenda, and innovative and successful case studies from across the globe

The relevance of inclusive and equitable quality education and lifelong learning opportunities for all (formal, non-formal and informal learning, including the use of ICT) and at all levels for improving people's lives and sustainable development

Reasons for a lack of access to education (e.g. poverty, conflicts, disasters, gender inequality, lack of public financing of education, growing privatization)

Global attainment of literacy, numeracy and basic skills

Diversity and inclusive education

Basic skills and competencies needed in the 21st century

Knowledge, values, skills and behaviours needed to promote sustainable development

The concept of education for sustainable development (ESD), whole-institution approach as a key strategy to scale up education for sustainable development, and pedagogy for developing sustainability competencies

Youth empowerment and empowerment of marginalized groups

Box 1.2.4b. Examples of learning approaches and methods for SDG 4 "Quality Education"

Develop partnerships between schools, universities and other institutions offering education in different regions of the world (South and North, South and South)

Plan and run a quality education awareness campaign

Conduct a case study on the education system and access to education (e.g. enrolment in primary education) in selected communities or countries

Plan and run an ESD project at a school or university, or for the local community

Celebrate UN World Youth Skills Day (15 July), International Literacy Day (8 September) or World Teachers' Day (5 October); or take part in Global Action Week for Education

Organize ESD days at local, regional and national level

Develop an enquiry-based project: "What is a sustainable school?"



1.2.5. SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls

Table 1.2.5. Learning objectives for SDG 5 "Gender Equality"

Cognitive learning objectives	1. The learner understands the concept of gender, gender equality and gender discrimination and knows about all forms of gender discrimination, violence and inequality (e.g. harmful practices such as female genital mutilation, honour killings and child marriage, unequal employment opportunities and pay, language construction, traditional gender roles, gendered impact of natural hazards) and understands the current and historical causes of gender inequality. 2. The learner understands the basic rights of women and girls, including their right to freedom from exploitation and violence and their reproductive rights. 3. The learner understands levels of gender equality within their own country and culture in comparison to global norms (while respecting cultural sensitivity), including the intersectionality of gender with other social categories such as ability, religion and race. 4. The learner knows the opportunities and benefits provided by full gender equality and participation in legislation and governance, including public budget allocation, the labour market and public and private decision-making. 5. The learner understands the role of education, enabling technology and legislation in empowering and ensuring the full participation of all genders.
Socio-emotional learning objectives	1. The learner is able to recognize and question traditional perception of gender roles in a critical approach, while respecting cultural sensitivity. 2. The learner is able to identify and speak up against all forms of gender discrimination and debate the benefits of full empowerment of all genders. 3. The learner is able to connect with others who work to end gender discrimination and violence, empower those who may still be disempowered and promote respect and full equality on all levels. 4. The learner is able to reflect on their own gender identity and gender roles. 5. The learner is able to feel empathy and solidarity with those who differ from personal or community gender expectations and roles.
Behavioural learning objectives	1. The learner is able to take the measure of their surroundings to empower themselves or others who are discriminated against because of their gender. 2. The learner is able to evaluate, participate in and influence decision-making about gender equality and participation. 3. The learner is able to support others in developing empathy across genders and breaking down gender discrimination and violence. 4. The learner is able to observe and identify gender discrimination. 5. The learner is able to plan, implement, support and evaluate strategies for gender equality.

Box 1.2.5a. Suggested topics for SDG 5 "Gender Equality"

Gender as a social and cultural construct

Gender inequality, traditional gender roles and structural discrimination

Gender equality and participation in decision-making

Gender and labour, including pay disparity and recognition of unpaid work

Gender and education, including gender equality in achieving primary, secondary and tertiary levels of education

Sexual and reproductive health and rights

Gender and poverty, including food security and financial dependence

Gender in community dynamics (decision-making, governance, child care, education, conflict resolution, disaster risk reduction and climate change adaptation)

Exploitation and trafficking of women and girls

The intersectionality of gender with other social categories such as ability, religion and race

Box 1.2.5b. Examples of learning approaches and methods for SDG 5 "Gender Equality"

Celebrate the International Day for the Elimination of Violence Against Women (November 25)

Invite speakers who have experienced violence based on gender identity or sexual orientation

Perform role-play games that explore inclusion and identity based on gender roles[2]

Partner with groups from other parts of the world where the approach to gender may be different

Spend a day working in traditional women's or men's work (swap work)

Explore how natural hazards and disasters affect women, girls, men and boys differently

Develop an enquiry-based project: "What is the difference between equality and equity and how does it apply to the world of work?"

2. E.g. http://www.youth.ie/sites/youth.ie/files/SDGs_Youth_Resource%20_Pack.pdf



1.2.6. SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all

Table 1.2.6. Learning objectives for SDG 6 "Clean Water and Sanitation"

Cognitive learning objectives	1. The learner understands water as a fundamental condition of life itself, the importance of water quality and quantity, and the causes, effects and consequences of water pollution and water scarcity. 2. The learner understands that water is part of many different complex global interrelationships and systems. 3. The learner knows about the global unequal distribution of access to safe drinking water and sanitation facilities. 4. The learner understands the concept of "virtual water"[3]. 5. The learner understands the concept of Integrated Water Resources Management (IWRM) and other strategies for ensuring the availability and sustainable management of water and sanitation, including flood and drought risk management.
Socio-emotional learning objectives	1. The learner is able to participate in activities of improving water and sanitation management in local communities. 2. The learner is able to communicate about water pollution, water access and water saving measures and to create visibility about success stories. 3. The learner is able to feel responsible for their water use. 4. The learner is able to see the value in good sanitation and hygiene standards. 5. The learner is able to question socio-economic differences as well as gender disparities in the access to safe drinking water and sanitation facilities.
Behavioural learning objectives	1. The learner is able to cooperate with local authorities in the improvement of local capacity for self-sufficiency. 2. The learner is able to contribute to water resources management at the local level. 3. The learner is able to reduce their individual water footprint and to save water practicing their daily habits. 4. The learner is able to plan, implement, evaluate and replicate activities that contribute to increasing water quality and safety. 5. The learner is able to evaluate, participate in and influence decision-making on management strategies of local, national and international enterprises related to water pollution.

3. Virtual water is the water 'embedded' in commodities. Producing goods and services requires water; the water used to produce agricultural or industrial products is called the virtual water of the product. http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/facts-and-figures/all-facts-wwdr3/fact-25-virtual-water-flows/

Box 1.2.6a. Suggested topics for SDG 6 "Clean Water and Sanitation"

The global water cycle and water distribution

The importance of equitable access to safe and affordable drinking water (achieving water security under climate change: e.g. coping with social and economic pressure caused by frequent waves of droughts and hence water shortages, and by floods and hence too much water)

The importance of adequate and equitable sanitation and hygiene, water quality and quantity parameters for health

The human right to water and water as a global common good

Impacts of pollution, dumping and release of hazardous chemicals and materials on water quality

Water scarcity and water use efficiency

Importance of water-related ecosystems

Water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies, water patents, landscaping for groundwater recharge as well as integrated water resources management

Water exports (virtual water)

Water and sustainable development (e.g. water and gender, water and inequality, water and health, water and cities, water and energy, water and food security, water and disaster risk reduction, water and climate change, water and the green economy, water and jobs)

Box 1.2.6b. Examples of learning approaches and methods for SDG 6 "Clean Water and Sanitation"

Calculate one's own water footprint (WF)[4]

Develop a concept for local sustainable water use and supply based on success stories

Develop school partnerships between schools in regions with abundance or scarcity of water

Organize excursions and field trips to local water infrastructures, and monitor water quality at school and home

Plan and run an awareness campaign or youth action project on water and its importance

Develop a project work on the invisible water, e.g. how much water in a litre of beer, a kilo of beef, a teeshirt, etc.

Develop an enquiry-based project: "What human activity can happen without water?"

4. The water footprint measures the amount of water used to produce each of the goods and services we use. It can be measured for a single process, such as growing rice, for a product such as jeans, for the fuel we put in our car, or for an entire multinational company. The water footprint can also tell us how much water is being consumed by a particular country or by an individual person. See: http://waterfootprint.org/en/resources/interactive-tools/personal-water-footprint-calculator/



1.2.7. SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all

Table 1.2.7. Learning objectives for SDG 7 "Affordable and Clean Energy"

Cognitive learning objectives	1. The learner knows about different energy resources – renewable and non-renewable – and their respective advantages and disadvantages including environmental impacts, health issues, usage, safety and energy security, and their share in the energy mix at the local, national and global level. 2. The learner knows what energy is primarily used for in different regions of the world. 3. The learner understands the concept of energy efficiency and sufficiency and knows socio-technical strategies and policies to achieve efficiency and sufficiency. 4. The learner understands how policies can influence the development of energy production, supply, demand and usage. 5. The learner knows about harmful impacts of unsustainable energy production, understands how renewable energy technologies can help to drive sustainable development and understands the need for new and innovative technologies and especially technology transfer in collaborations between countries.
Socio-emotional learning objectives	1. The learner is able to communicate the need for energy efficiency and sufficiency. 2. The learner is able to assess and understand the need for affordable, reliable, sustainable and clean energy of other people/other countries or regions. 3. The learner is able to cooperate and collaborate with others to transfer and adapt energy technologies to different contexts and to share energy best practices of their communities. 4. The learner is able to clarify personal norms and values related to energy production and usage as well as to reflect and evaluate their own energy usage in terms of efficiency and sufficiency. 5. The learner is able to develop a vision of a reliable, sustainable energy production, supply and usage in their country.
Behavioural learning objectives	1. The learner is able to apply and evaluate measures in order to increase energy efficiency and sufficiency in their personal sphere and to increase the share of renewable energy in their local energy mix. 2. The learner is able to apply basic principles to determine the most appropriate renewable energy strategy in a given situation. 3. The learner is able to analyse the impact and long-term effects of big energy projects (e.g. constructing an off-shore wind park) and energy related policies on different stakeholder groups (including nature). 4. The learner is able to influence public policies related to energy production, supply and usage. 5. The learner is able to compare and assess different business models and their suitability for different energy solutions and to influence energy suppliers to produce safe, reliable and sustainable energy.

Box 1.2.7a. Suggested topics for SDG 7 "Affordable and Clean Energy"

Different energy types, especially renewable energies like solar, wind, water, geothermal, tidal

Energy production, supply, demand and usage of different countries

Energy efficiency and sufficiency in energy usage

Strategies: Centralized versus decentralized energy production; energy self-sufficiency, e.g. via local energy supply companies (LESCOs)

Political, economic and social dimensions of energy and linkages to power constellations, e.g. in mega energy projects like large scale solar farms or dam projects – potential conflict of interests (political and economic power (across borders), rights of especially indigenous people)

Environmental impacts and issues of energy production, supply and usage (e.g. climate change, grey energy[5])

The role of the public and private sectors in ensuring the development of low carbon energy solutions

Peak of oil production and energy security – (over)dependence on non-renewable energies like oil

Bridging technologies and technology for a 'cleaner' use of fossil fuels

Gender issues related to energy production, supply and usage

Box 1.2.7b. Examples of learning approaches and methods for SDG 7 "Affordable and Clean Energy"

Experiment with renewable energy technologies

Reflect on and discuss own energy usage, e.g. ranking reasons for energy usage on a (subjective) dimension of "for fulfilling basic needs" (e.g. energy for cooking) to "for a luxury lifestyle" (e.g. energy for a swimming pool)

Organize excursions to energy sites including ethical discussions with pros and cons of energy types and projects

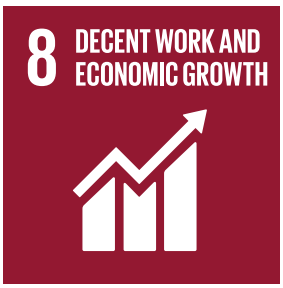
Conduct scenario analyses for future energy production, supply and usage

Conduct an energy saving campaign in one's own institution or at the local level

Run a group project on how much energy is required to produce our daily needs, e.g. loaf of bread, cereal, etc.

Develop an enquiry-based project: "How are energy and human well-being linked?"

5. Grey energy is the hidden energy associated with a product, meaning the total energy consumed throughout the product's life cycle from its production to its disposal.



1.2.8. SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Table 1.2.8. Learning objectives for SDG 8 "Decent Work and Economic Growth"

Cognitive learning objectives	1. The learner understands the concepts of sustained, inclusive and sustainable economic growth, full and productive employment, and decent work, including the advancement of gender parity and equality, and knows about alternative economic models and indicators. 2. The learner has knowledge about the distribution of formal employment rates per sector, informal employment, and unemployment in different world regions or nations, and which social groups are especially affected by unemployment. 3. The learner understands the relation between employment and economic growth, and knows about other moderating factors like a growing labour force or new technologies that substitute jobs. 4. The learner understands how low and decreasing wages for the labour force and very high wages and profits of managers and owners or shareholders are leading to inequalities, poverty, civil unrest, etc. 5. The learner understands how innovation, entrepreneurship and new job creation can contribute to decent work and a sustainability-driven economy and to the decoupling of economic growth from the impacts of natural hazards and environmental degradation.
Socio-emotional learning objectives	1. The learner is able to discuss economic models and future visions of economy and society critically and to communicate them in public spheres. 2. The learner is able to collaborate with others to demand fair wages, equal pay for equal work and labour rights from politicians and from their employer. 3. The learner is able to understand how one's own consumption affects working conditions of others in the global economy. 4. The learner is able to identify their individual rights and clarify their needs and values related to work. 5. The learner is able to develop a vision and plans for their own economic life based on an analysis of their competencies and contexts.
Behavioural learning objectives	1. The learner is able to engage with new visions and models of a sustainable, inclusive economy and decent work. 2. The learner is able to facilitate improvements related to unfair wages, unequal pay for equal work and bad working conditions. 3. The learner is able to develop and evaluate ideas for sustainability-driven innovation and entrepreneurship. 4. The learner is able to plan and implement entrepreneurial projects. 5. The learner is able to develop criteria and make responsible consumption choices as a means to support fair working conditions and efforts to decouple production from the impact of natural hazards and environmental degradation.

Box 1.2.8a. Suggested topics for SDG 8 "Decent Work and Economic Growth"

The contributions of economies to human well-being, and the social and individual effects of unemployment

Economic ethics

Theoretical assumptions, models and indicators of economic growth (GDP, GNI, HDI)

Alternative economic models and indicators: steady-state economies, common-welfare economies, de-growth, subsistence economies, Inclusive Wealth Index[6], Global Hunger Index[7]

Concepts and phenomena in financial systems and their influence on economic development (investments, credits, interests, banks, speculations on the stock exchange, inflation, etc.)

Labour force (increase in population through birth rates, migration, etc.)

Gender equality in the economy and the (economic) value of care work

Inequalities in the labour market: representation and participation of different social groups, and different income/wages and weekly worktime between countries, sectors, social groups, genders

Formal and informal labour, labour rights, especially for migrants and refugees, forced labour, slavery and human trafficking

Entrepreneurship, (social) innovation, new technologies and local economies for sustainable development

Box 1.2.8b. Examples of learning approaches and methods for SDG 8 "Decent Work and Economic Growth"

Play devil's advocate for different economic growth models

Plan and implement entrepreneurial and social entrepreneurial projects

Run student internships in conjunction with local businesses

Explore needs and perspectives of employers and employees through interviews

Map out multiple life and career paths

Engage with employers in classroom activities

Develop an enquiry-based project: "What can my career contribute to sustainable development?"

6. http://inclusivewealthindex.org/#the-world-wants-to-know-how-its-doing
7. http://www.ifpri.org/topic/global-hunger-index



1.2.9. SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation

Table 1.2.9. Learning objectives for SDG 9 "Industry, Innovation and Infrastructure"

Cognitive learning objectives	1. The learner understands the concepts of sustainable infrastructure and industrialization and society's needs for a systemic approach to their development. 2. The learner understands the local, national and global challenges and conflicts in achieving sustainability in infrastructure and industrialization. 3. The learner can define the term resilience in the context of infrastructure and spatial planning, understanding key concepts such as modularity and diversity, and apply it to their local community and nationwide. 4. The learner knows the pitfalls of unsustainable industrialization and in contrast knows examples of resilient, inclusive, sustainable industrial development and the need for contingency planning. 5. The learner is aware of new opportunities and markets for sustainability innovation, resilient infrastructure and industrial development.
Socio-emotional learning objectives	1. The learner is able to argue for sustainable, resilient and inclusive infrastructure in their local area. 2. The learner is able to encourage their communities to shift their infrastructure and industrial development toward more resilient and sustainable forms. 3. The learner is able to find collaborators to develop sustainable and contextual industries that respond to our shifting challenges and also to reach new markets. 4. The learner is able to recognize and reflect on their own personal demands on the local infrastructure such as their carbon and water footprints and food miles. 5. The learner is able to understand that with changing resource availability (e. g. peak oil, peak everything) and other external shocks and stresses (e. g. natural hazards, conflicts) their own perspective and demands on infrastructure may need to shift radically regarding availability of renewable energy for ICT, transport options, sanitation options, etc.
Behavioural learning objectives	1. The learner is able to identify opportunities in their own culture and nation for greener and more resilient approaches to infrastructure, understanding their overall benefits for societies, especially with regard to disaster risk reduction. 2. The learner is able to evaluate various forms of industrialization and compare their resilience. 3. The learner is able to innovate and develop sustainable enterprises to respond to their countries' industrial needs. 4. The learner is able to access financial services such as loans or microfinance to support their own enterprises. 5. The learner is able to work with decision-makers to improve the uptake of sustainable infrastructure (including internet access).

Box 1.2.9a. Suggested topics for SDG 9 "Industry, Innovation and Infrastructure"

The sustainability of information and communication technology (ICT) including supply chains, waste disposal and recycling

The relation of quality infrastructure and the achievement of social, economic and political goals

The need for basic infrastructure like roads, information and communication technologies, sanitation, electrical power and water

Inclusive and sustainable innovation and industrialization

Sustainable and resilient infrastructure development

Sustainable electricity: national grids, feed-in tariffs, expanding sustainable renewable sources, conflicts

The sustainable job market, opportunities and investments

The sustainability of the internet – from green chat groups to the ecological footprint of search-engine servers

The sustainability of transport infrastructure

Alternative currencies as investment in local infrastructure

Box 1.2.9b. Examples of learning approaches and methods for SDG 9 "Industry, Innovation and Infrastructure"

Role-play a day without access to electricity

Develop a business continuity plan for a local enterprise after the impact of a natural hazard

Develop an energy descent action plan for your community

Develop a vision for a world with fossil fuel free transport systems

Develop a project exploring one form of either the physical or social infrastructure that underpins your community

Engage students and young people in developing spaces for community get-togethers

Develop an enquiry-based project: "Is all innovation good?"



1.2.10. SDG 10 | Reduced Inequalities | Reduce inequality within and among countries

Table 1.2.10: Learning objectives for SDG 10 "Reduced Inequalities"

Cognitive learning objectives	1. The learner knows different dimensions of inequality, their interrelations and applicable statistics. 2. The learner knows indicators that measure and describe inequalities and understands their relevance for decision-making. 3. The learner understands that inequality is a major driver for societal problems and individual dissatisfaction. 4. The learner understands local, national and global processes that both promote and hinder equality (fiscal, wage, and social protection policies, corporate activities, etc.). 5. The learner understands ethical principles concerning equality and is aware of psychological processes that foster discriminative behaviour and decision making.
Socio-emotional learning objectives	1. The learner is able to raise awareness about inequalities. 2. The learner is able to feel empathy for and to show solidarity with people who are discriminated against. 3. The learner is able to negotiate the rights of different groups based on shared values and ethical principles. 4. The learner becomes aware of inequalities in their surroundings as well as in the wider world and is able to recognize the problematic consequences. 5. The learner is able to maintain a vision of a just and equal world.
Behavioural learning objectives	1. The learner is able to evaluate inequalities in their local environment in terms of quality (different dimensions, qualitative impact on individuals) and quantity (indicators, quantitative impact on individuals). 2. The learner is able to identify or develop an objective indicator to compare different groups, nations, etc. with respect to inequalities. 3. The learner is able to identify and analyse different types of causes and reasons for inequalities. 4. The learner is able to plan, implement and evaluate strategies to reduce inequalities. 5. The learner is able to engage in the development of public policies and corporate activities that reduce inequalities.

Box 1.2.10a. Suggested topics for SDG 10 "Reduced Inequalities"

Social, economic and political inclusion versus inequalities (on national and global levels) – typical discriminatory categories

Different indicators to measure inequality

The meaning of rights to land, property and natural resources for equality and the impact of inequalities on vulnerabilities and capacities

Fiscal, wage and social protection policies

Global trade systems and regulations (including tax regimes)

Labour standards

Representation of different social groups/nations in governments/on boards of meaningful and powerful institutions

The amount and effects of international development aid

Historical roots of current inequalities (including the role of multinational companies)

Migration and mobility of people

Box 1.2.10b. Examples of learning approaches and methods for SDG 10 "Reduced Inequalities"

Play simple distribution games to discuss psychological effects of unfair and unequal treatment or the exacerbation of the impacts of natural hazards on a community due to inequality

Analyse the share of different social categories in the own institution

Plan an awareness or political campaign directed at inequalities in global trading systems

Analyse one's own personal history considering times where one was privileged or discriminated against

Conduct interviews with people in vulnerability (e.g. migrants)

Develop a web page or a blog highlighting an understanding of the local migration and/or refugee situation

Develop an enquiry-based project: "How does inequality influence people's happiness?"



1.2.11. SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable

Table 1.2.11. Learning objectives for SDG 11 "Sustainable Cities and Communities"

Cognitive learning objectives	1. The learner understands basic physical, social and psychological human needs and is able to identify how these needs are currently addressed in their own physical urban, peri-urban and rural settlements. 2. The learner is able to evaluate and compare the sustainability of their and other settlements' systems in meeting their needs particularly in the areas of food, energy, transport, water, safety, waste treatment, inclusion and accessibility, education, integration of green spaces and disaster risk reduction. 3. The learner understands the historical reasons for settlement patterns and while respecting cultural heritage, understands the need to find compromises to develop improved sustainable systems. 4. The learner knows the basic principles of sustainable planning and building, and can identify opportunities for making their own area more sustainable and inclusive. 5. The learner understands the role of local decision-makers and participatory governance and the importance of representing a sustainable voice in planning and policy for their area.
Socio-emotional learning objectives	1. The learner is able to use their voice, to identify and use entry points for the public in the local planning systems, to call for the investment in sustainable infrastructure, buildings and parks in their area and to debate the merits of long-term planning. 2. The learner is able to connect with and help community groups locally and online in developing a sustainable future vision of their community. 3. The learner is able to reflect on their region in the development of their own identity, understanding the roles that the natural, social and technical environments have had in building their identity and culture. 4. The learner is able to contextualize their needs within the needs of the greater surrounding ecosystems, both locally and globally, for more sustainable human settlements. 5. The learner is able to feel responsible for the environmental and social impacts of their own individual lifestyle.
Behavioural learning objectives	1. The learner is able to plan, implement and evaluate community-based sustainability projects. 2. The learner is able to participate in and influence decision processes about their community. 3. The learner is able to speak against/for and to organize their voice against/for decisions made for their community. 4. The learner is able to co-create an inclusive, safe, resilient and sustainable community. 5. The learner is able to promote low carbon approaches at the local level.

Box 1.2.11a. Suggested topics for SDG 11 "Sustainable Cities and Communities"

The need for shelter, safety and inclusiveness (human needs, contextualizing our different individual and collective wants and needs according to gender, age, income and ability)

Management and use of natural resources (renewables and non-renewables)

Sustainable energy (residential energy use, renewable energies, community energy schemes) and transportation

Sustainable food (agriculture, organic agriculture and permaculture, community supported agriculture, foodshed[8], food processing, dietary choices and habits, waste generation)

Urban ecology and how wildlife is adapting to humanity's settlements

Sustainable resilient buildings and spatial planning (building materials, energy saving, planning processes)

Waste generation and management (prevention, reduction, recycling, reuse)

Communities and their dynamics (decision-making, governance, planning, conflict resolution, alternative communities, healthy communities, inclusive communities, ecovillages, transition towns)

Water cycle and restoring ground water through urban design (Green Roofs, rainwater harvesting, daylighting old river beds, sustainable urban drainage)

Disaster preparedness and resilience, resilience to weather problems and in the future and a culture of prevention and preparedness

Box 1.2.11b. Examples of learning approaches and methods for SDG 11 "Sustainable Cities and Communities"

Excursions to ecovillages and other "living laboratories", to waste water treatment plants and other service centres to show current and best practice

Develop and run a (youth) action project on sustainable cities and communities

Invite older generations in to talk about how the settlement has changed over time. Ask them about their connection to the bioregion. Use art, literature and history to explore the settlement area and its changes

Build a community garden

Mapping projects: map the area to note where there is good use of public open space, human scale planning, areas where the needs of the community are addressed, green spaces, etc. This can also map the areas that need to be improved, such as areas most exposed to natural hazards

Develop a two-minute video clip on an example of a sustainable urban community

Develop an enquiry-based project: "Would it be more sustainable if we all lived in cities?"

8. A foodshed is the geographic location that produces the food for a particular population (http://foodshedalliance.org/what-is-a-foodshed).



1.2.12. SDG 12 | Responsible Consumption and Production |

Ensure sustainable consumption and production patterns

Table 1.2.12. Learning objectives for SDG 12 "Responsible Consumption and Production"

Cognitive learning objectives	1. The learner understands how individual lifestyle choices influence social, economic and environmental development. 2. The learner understands production and consumption patterns and value chains and the interrelatedness of production and consumption (supply and demand, toxics, CO2 emissions, waste generation, health, working conditions, poverty, etc.). 3. The learner knows roles, rights and duties of different actors in production and consumption (media and advertising, enterprises, municipalities, legislation, consumers, etc.). 4. The learner knows about strategies and practices of sustainable production and consumption. 5. The learner understands dilemmas/trade-offs related to and system changes necessary for achieving sustainable consumption and production.
Socio-emotional learning objectives	1. The learner is able to communicate the need for sustainable practices in production and consumption. 2. The learner is able to encourage others to engage in sustainable practices in consumption and production. 3. The learner is able to differentiate between needs and wants and to reflect on their own individual consumer behaviour in light of the needs of the natural world, other people, cultures and countries, and future generations. 4. The learner is able to envision sustainable lifestyles. 5. The learner is able to feel responsible for the environmental and social impacts of their own individual behaviour as a producer or consumer.
Behavioural learning objectives	1. The learner is able to plan, implement and evaluate consumption-related activities using existing sustainability criteria. 2. The learner is able to evaluate, participate in and influence decision-making processes about acquisitions in the public sector. 3. The learner is able to promote sustainable production patterns. 4. The learner is able take on critically on their role as an active stakeholder in the market. 5. The learner is able to challenge cultural and societal orientations in consumption and production.

Box 1.2.12a. Suggested topics for SDG 12 "Responsible Consumption and Production"

Advertising, peer-pressure, belonging and identity-creation

Production and consumption history, patterns and value chains, and management and use of natural resources (renewables and non-renewables)

Environmental and social impacts of production and consumption

Energy production and consumption (transport, commercial and residential energy use, renewable energies)

Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, overconsumption of food and hunger)

Tourism

Waste generation and management (prevention, reduction, recycling, reuse)

Sustainable lifestyles and diverse practices of sustainable production and consumption

Labelling systems and certificates for sustainable production and consumption

Green economy (cradle-to-cradle, circular economy, green growth, degrowth)

Box 1.2.12b. Examples of learning approaches and methods for SDG 12 "Responsible Consumption and Production"

Calculate and reflect on one's individual ecological footprint[9]

Analyse different products (e.g. cell phones, computers, clothes) using Life Cycle Analysis (LCA)

Run a student company producing and selling sustainable products

Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)

Screen short films/documentaries to help learners understand production and consumption patterns (e.g. *Story of Stuff* by Annie Leonard[10])

Develop and run a (youth) action project related to production and consumption (e.g. fashion, technology, etc.)

Develop an enquiry-based project: "Is sustainability about giving things up?"

9. The ecological footprint is a measure of human impact on Earth's ecosystems. It measures the supply of and demand on nature and is measured in area of wilderness or amount of natural capital consumed each year. See: http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/.
10. http://storyofstuff.org/movies/story-of-stuff/



1.2.13. SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts

Table 1.2.13. Learning objectives for SDG 13 "Climate Action"

Cognitive learning objectives	1. The learner understands the greenhouse effect as a natural phenomenon caused by an insulating layer of greenhouse gases. 2. The learner understands the current climate change as an anthropogenic phenomenon resulting from increased greenhouse gas emissions. 3. The learner knows which human activities – on a global, national, local and individual level – contribute most to climate change. 4. The learner knows about the main ecological, social, cultural and economic consequences of climate change locally, nationally and globally and understands how these can themselves become catalysing, reinforcing factors for climate change. 5. The learner knows about prevention, mitigation and adaptation strategies at different levels (global to individual) and for different contexts and their connections with disaster response and disaster risk reduction.
Socio-emotional learning objectives	1. The learner is able to explain ecosystem dynamics and the environmental, social, economic and ethical impact of climate change. 2. The learner is able to encourage others to protect the climate. 3. The learner is able to collaborate with others and to develop commonly agreed-upon strategies to deal with climate change. 4. The learner is able to understand their personal impact on the world's climate, from a local to a global perspective. 5. The learner is able to recognize that the protection of the global climate is an essential task for everyone and that we need to completely re-evaluate our worldview and everyday behaviours in light of this.
Behavioural learning objectives	1. The learner is able to evaluate whether their private and job activities are climate friendly and – where not – to revise them. 2. The learner is able to act in favour of people threatened by climate change. 3. The learner is able to anticipate, estimate and assess the impact of personal, local and national decisions or activities on other people and world regions. 4. The learner is able to promote climate-protecting public policies. 5. The learner is able to support climate-friendly economic activities.

Box 1.2.13a. Suggested topics for SDG 13 "Climate Action"

Greenhouse gases and their emission

Energy, agriculture and industry-related greenhouse gas emissions

Climate change-related hazards leading to disasters like drought, weather extremes, etc. and their unequal social and economic impact within households, communities and countries and between countries

Sea-level rise and its consequences for countries (e.g. small island states)

Migration and flight related to climate change

Prevention, mitigation and adaptation strategies and their connections with disaster response and disaster risk reduction

Local, national and global institutions addressing issues of climate change

Local, national and global policy strategies to protect the climate

Future scenarios (including alternative explanations for the global temperature rise)

Effects of and impacts on big eco-systems like forests, oceans, glaciers and biodiversity

Ethics and climate change

Box 1.2.13b. Examples of learning approaches and methods for SDG 13 "Climate Action"

Perform a role-play to estimate and feel the impact of climate change related phenomena from different perspectives

Analyse different climate change scenarios with regard to their assumptions, consequences and their preceding development paths

Develop and run an action project or campaign related to climate protection

Develop a web page or blog for group contributions related to climate change issues

Develop climate friendly biographies

Undertake a case study about how climate change could increase the risk of disasters in a local community

Develop an enquiry-based project investigating the statement "Those who caused the most damage to the atmosphere should pay for it"



1.2.14. SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Table 1.2.14. Learning objectives for SDG 14 "Life below Water"

Cognitive learning objectives	1. The learner understands basic marine ecology, ecosystems, predator-prey relationships, etc. 2. The learner understands the connection of many people to the sea and the life it holds, including the sea's role as a provider of food, jobs and exciting opportunities. 3. The learner knows the basic premise of climate change and the role of the oceans in moderating our climate. 4. The learner understands threats to ocean systems such as pollution and overfishing and recognizes and can explain the relative fragility of many ocean ecosystems including coral reefs and hypoxic dead zones. 5. The learner knows about opportunities for the sustainable use of living marine resources.
Socio-emotional learning objectives	1. The learner is able to argue for sustainable fishing practices. 2. The learner is able to show people the impact humanity is having on the oceans (biomass loss, acidification, pollution, etc.) and the value of clean healthy oceans. 3. The learner is able to influence groups that engage in unsustainable production and consumption of ocean products. 4. The learner is able to reflect on their own dietary needs and question whether their dietary habits make sustainable use of limited resources of seafood. 5. The learner is able to empathize with people whose livelihoods are affected by changing fishing practices.
Behavioural learning objectives	1. The learner is able to research their country's dependence on the sea. 2. The learner is able to debate sustainable methods such as strict fishing quotas and moratoriums on species in danger of extinction. 3. The learner is able to identify, access and buy sustainably harvested marine life, e.g. ecolabel certified products. 4. The learner is able to contact their representatives to discuss overfishing as a threat to local livelihoods. 5. The learner is able to campaign for expanding no-fish zones and marine reserves and for their protection on a scientific basis.

Box 1.2.14a. Suggested topics for SDG 14 "Life below Water"

The hydrosphere: The water cycle, cloud formation, water as the great climate regulator

Management and use of marine resources (renewables and non-renewables): global commons and overfishing, quotas and how they are negotiated, aquaculture, seaweed, mineral resources

Sustainable Marine Energy (renewable energies, wind turbines and their controversy)

Marine ecology – the food web, predators and prey, competition, collapse

Coral reefs, coasts, mangroves and their ecological importance

Sea level rise and countries that will experience total or partial loss of land; climate refugees and what a loss of sovereignty will mean

The oceans and international law: international waters, territory disputes, flags of convenience and their related issues

Ocean pollutants: plastics, microbeads, sewage, nutrients and chemicals

The deep ocean and deep-sea creatures

Cultural relationships to the sea – the sea as a source of cultural ecosystem services such as recreation, inspiration and building of cultural identity

Box 1.2.14b. Examples of learning approaches and methods for SDG 14 "Life below Water"

Develop and run a (youth) action project related to life below water

Undertake excursions to coastal sites

Debate sustainable use and management of fishery resources in school

Role-play islanders relocating from their country because of sea-level rise

Conduct a case study about cultural and subsistent relationships with the sea in different countries

Conduct lab experiments to provide students with evidence of ocean acidification

Develop an enquiry-based project: "Do we need the ocean or does the ocean need us?"



1.2.15. SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Table 1.2.15. Learning objectives for SDG 15 "Life on Land"

Cognitive learning objectives	1. The learner understands basic ecology with reference to local and global ecosystems, identifying local species and understanding the measure of biodiversity. 2. The learner understands the manifold threats posed to biodiversity, including habitat loss, deforestation, fragmentation, overexploitation and invasive species, and can relate these threats to their local biodiversity. 3. The learner is able to classify the ecosystem services of the local ecosystems including supporting, provisioning, regulating and cultural services and ecosystems services for disaster risk reduction. 4. The learner understands the slow regeneration of soil and the multiple threats that are destroying and removing it much faster than it can replenish itself, such as poor farming or forestry practice. 5. The learner understands that realistic conservation strategies work outside pure nature reserves to also improve legislation, restore degraded habitats and soils, connect wildlife corridors, sustainable agriculture and forestry, and redress humanity's relationship to wildlife.
Socio-emotional learning objectives	1. The learner is able to argue against destructive environmental practices that cause biodiversity loss. 2. The learner is able to argue for the conservation of biodiversity on multiple grounds including ecosystems services and intrinsic value. 3. The learner is able to connect with their local natural areas and feel empathy with non-human life on Earth. 4. The learner is able to question the dualism of human/nature and realizes that we are a part of nature and not apart from nature. 5. The learner is able to create a vision of a life in harmony with nature.
Behavioural learning objectives	1. The learner is able to connect with local groups working toward biodiversity conservation in their area. 2. The learner is able to effectively use their voice effectively in decision-making processes to help urban and rural areas become more permeable to wildlife through the establishment of wildlife corridors, agro-environmental schemes, restoration ecology and more. 3. The learner is able to work with policy-makers to improve legislation for biodiversity and nature conservation, and its implementation. 4. The learner is able to highlight the importance of soil as our growing material for all food and the importance of remediating or stopping the erosion of our soils. 5. The learner is able to campaign for international awareness of species exploitation and work for the implementation and development of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) regulations.

Box 1.2.15a. Suggested topics for SDG 15 "Life on Land"

Ecology: competition, predator-prey, community dynamics, energy flow through food webs, dispersal and ranges. Specific ecosystems – local and global native ecosystems and also human-made ones, e.g. managed forestry plantations

Threats to biodiversity: habitat loss, deforestation, fragmentation, invasive species and overexploitation (caused by unsustainable production and consumption practices, unsustainable technologies, etc.)

The dangers of extinction: Individually endangered species, how extinction is forever, the long time needed to form species, and the six mass extinctions

Restoration of wildlife and seeing humans as a healing force

Climate change and biodiversity, ecosystems as carbon sinks, disaster risk reduction and ecosystems (ecosystems as a natural barrier to natural hazards)

Soil and its formation and structure

Desertification, deforestation and efforts to combat them

The human's connection with nature – the natural self

Ecosystem services (cultural, provisioning, regulatory and supporting)

Evolution and genetics, genetic resources, ethics

Box 1.2.15b. Examples of learning approaches and methods for SDG 15 "Life on Land"

Map the local area, mark areas of various wildlife populations as well as barriers, such as dispersal barriers like roads and invasive species populations

Perform a bioblitz – an annual day when the community comes together to map as many different species in their area as possible

Run a composting workshop and show organic material formation

Take an excursion to a nearby parkland for cultural purposes, e.g. recreation, meditation, art

Plant a wildlife garden for wild animals, e.g. bee-friendly flowers, insect hotels, ponds, etc. in urban areas

Celebrate Earth Day (April 22) and/or World Environment Day (June 5)

Develop an enquiry-based project: "Why is biodiversity important?"



1.2.16. SDG 16 | Peace, Justice and Strong Institutions | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Table 1.2.16. Learning objectives for SDG 16 "Peace, Justice and Strong Institutions"

Cognitive learning objectives	1. The learner understands concepts of justice, inclusion and peace and their relationship to law. 2. The learner understands their local and national legislative and governance systems, how they represent them and that they can be abused through corruption. 3. The learner is able to compare their system of justice with those of other countries. 4. The learner understands the importance of individuals and groups in upholding justice, inclusion and peace and supporting strong institutions in their country and globally. 5. The learner understands the importance of the international human rights framework.
Socio-emotional learning objectives	1. The learner is able to connect with others who can help them in facilitating peace, justice, inclusion and strong institutions in their country. 2. The learner is able to debate local and global issues of peace, justice, inclusion and strong institutions. 3. The learner is able to show empathy with and solidarity for those suffering from injustice in their own country as well as in other countries. 4. The learner is able to reflect on their role in issues of peace, justice, inclusion and strong institutions. 5. The learner is able to reflect on their own personal belonging to diverse groups (gender, social, economic, political, ethnical, national, ability, sexual orientation etc.) their access to justice and their shared sense of humanity.
Behavioural learning objectives	1. The learner is able to critically assess issues of peace, justice, inclusion and strong institutions in their region, nationally and globally. 2. The learner is able to publicly demand and support the development of policies promoting peace, justice, inclusion and strong institutions. 3. The learner is able to collaborate with groups that are currently experiencing injustice and/or conflicts. 4. The learner is able to become an agent of change in local decision-making, speaking up against injustice. 5. The learner is able to contribute to conflict resolution at the local and national level.

Box 1.2.16a. Suggested topics for SDG 16 "Peace, Justice and Strong Institutions"

Definitions of justice: retributive and rehabilitative

Crime and punishment, comparing laws and punishments across the globe

Climate Justice

Trade Justice

Child labour and exploitation of children

Global treaties and agreements related to war, peace and refugees

Corruption and how to measure it

The illegal weapons trade

Drug abuse and its trade

The international criminal court and its role

Box 1.2.16b. Examples of learning approaches and methods for SDG 16 "Peace, Justice and Strong Institutions"

Perform a role-play about different people from around the world who are victims of injustice

Have interfaith dialogues in schools and college campuses about justice and equality

Organize an excursion to a local court or police station

Design a poster "What is fair/just" at school

Debate issues of justice of historical and cultural context, e.g. the disappeared in Argentina, Apartheid in South Africa, etc. and how these justice issues have developed

Celebrate the International Day of Peace (September 21)

Develop an enquiry-based project: "What would a peaceful world look like?"



1.2.17. SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development

Table 1.2.17. Learning objectives for SDG 17 "Partnerships for the Goals"

Cognitive learning objectives	1. The learner understands global issues, including issues of financing for development, taxation, debt and trade policies, and the interconnectedness and interdependency of different countries and populations. 2. The learner understands the importance of global multi-stakeholder partnerships and the shared accountability for sustainable development and knows examples of networks, institutions, campaigns of global partnerships. 3. The learner knows the concepts of global governance and global citizenship. 4. The learner recognizes the importance of cooperation on and access to science, technology and innovation, and knowledge sharing. 5. The learner knows concepts for measuring progress on sustainable development.
Socio-emotional learning objectives	1. The learner is able to raise awareness about the importance of global partnerships for sustainable development. 2. The learner is able to work with others to promote global partnerships for sustainable development and demand governments' accountability for the SDGs. 3. The learner is able to take ownership of the SDGs. 4. The learner is able to create a vision for a sustainable global society. 5. The learner is able to experience a sense of belonging to a common humanity, sharing values and responsibilities, based on human rights.
Behavioural learning objectives	1. The learner is able to become a change agent to realize the SDGs and to take on their role as an active, critical and global and sustainability citizen. 2. The learner is able to contribute to facilitating and implementing local, national and global partnerships for sustainable development. 3. The learner is able to publicly demand and support the development of policies promoting global partnerships for sustainable development. 4. The learner is able to support development cooperation activities. 5. The learner is able to influence companies to become part of global partnerships for sustainable development.

Box 1.2.17a. Suggested topics for SDG 17 "Partnerships for the Goals"

Global partnerships between governments, the private sector and civil society for sustainable development, their shared accountability and possible conflicts between the different actors

Local, national and global systems, structures and power dynamics

Global governance and policies and the global market and trading system in the light of sustainable development

The prisoner's dilemma[11] and tragedy of the commons[12] as challenges for creating global governance and markets promoting sustainable development

Global citizenship and citizens as change agents for sustainable development

Cooperation on and access to science, technology and innovation, and knowledge sharing

Global distribution of access to the internet

Development cooperation, development assistance, and additional financial resources for developing countries from multiple sources

Capacity-building to support national plans to implement all the SDGs

Measurements of progress on sustainable development

Box 1.2.17b. Examples of learning approaches and methods for SDG 17 "Partnerships for the Goals"

Develop partnerships or global web-based distance education experiences between schools, universities or other institutions in different regions of the world (South and North; South and South)

Analyse the development and implementation of global policies on climate change, biodiversity, etc.

Analyse the progress in implementing the SDGs globally and at the national level, and determine who is accountable for progress or lack thereof

Plan and implement an SDGs awareness campaign

Perform simulation games related to global conference negotiations (e.g. National Model United Nations)

Plan and run a (youth) action project on the SDGs and their importance

Develop an enquiry-based project: "Together we can….Explore this commonly used phrase and how it applies to the SDGs"

11. http://www.prisoners-dilemma.com
12. http://www.econlib.org/library/Enc/TragedyoftheCommons.html

2. Implementing learning for the SDGs through ESD

2. Implementing learning for the SDGs through ESD

ESD helps develop the above cognitive, socio-emotional and behavioural learning outcomes as well as the cross-cutting sustainability key competencies needed to achieve all the SDGs. This third part of the guidance framework offers recommendations and illustrations of strategies to implement ESD.

The approach follows the general idea of mainstreaming ESD in education systems indicated by the global indicator for Target 4.7: "Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment" (IAEG-SDGs, 2016: 7). First the text describes the role of policy and points out issues crucial for the successful implementation of policies, strategies and programmes promoting ESD. Second, it discusses the relevance and the state of the art of integrating ESD in curricula. Third, the relevance of teacher education and its opportunities for facilitating ESD are examined. Fourth, the whole-institution approach and action-oriented transformative pedagogies are presented as key drivers for delivering ESD in the classroom and other learning settings. Finally, the question of how to assess learning outcomes and the quality of programmes in the context of ESD is discussed.

2.1. Integrating ESD in policies, strategies, and programmes

Policy is a key factor for integrating ESD in all formal, non-formal and informal learning settings. We need relevant and coherent policies to facilitate a change of the education systems. The Ministries of Education around the globe have an important responsibility to ensure that education systems are prepared for, and responsive to, existing and emerging sustainability challenges. This includes, among others, integrating ESD into curricula and national quality standards, and developing relevant indicator frameworks that establish standards for learning outcomes.

The monitoring and evaluation of the DESD has shown that we have made considerable progress in integrating ESD in education policies (see box 2.1.1). The process of reorienting education policies towards sustainable development in many countries is underway (see box 2.1.2 for two examples), although progress remains uneven (UNESCO, 2014a).

Against this background, the Priority Action Area 1 of UNESCO's Global Action Programme on ESD calls for "Advancing policy: Mainstream ESD into both education and sustainable development policies, to create an enabling environment for ESD and to bring about systemic change" (UNESCO, 2014b). For initiating systemic change, relevant and coherent policies designed by ministries in cooperation with the private sector, local communities, academics and civil society are crucial. Existing efforts to develop policies on ESD based on cross-sector and multi-stakeholder approaches need to be further coordinated and strengthened. ESD has to be "integrated into sub-national, national, sub-regional, regional and international policy frameworks, plans, strategies, programmes and processes related to education and to sustainable development" (UNESCO, 2014b: 17).

By enabling learners to live and act in a changing world, ESD increases the quality of teaching and learning. Therefore, education policy needs to see ESD as an important contributor to educational quality, and hence national education system measures of quality should include ESD. National and international policies dealing with the social, economic and environmental dimensions of sustainable development, ranging from poverty reduction strategies and disaster management plans to low carbon development strategies, should include ESD as a means of implementation. ESD should also be included systematically in bilateral and multilateral development cooperation frameworks (UNESCO, 2014b).

Certain issues can be identified as crucial for the successful implementation of policies promoting ESD (see box 2.1.3).

Box 2.1.1. Progress in policies for ESD

A number of policies of various governments, in countries both from the Global South and from the Global North, call for the integration of ESD and/or related educational concepts, such as development education, peace education, global citizenship education, human rights education and environmental education, in formal and non-formal learning.

ESD has become an important part of the global policy discourse.

ESD is increasingly a part of local, national and global policies to address sustainable development issues (e.g. climate change).

Sustainable development and education policies are becoming more and more aligned.

Source: UNESCO (2014a)

Box 2.1.2. Country examples of good practice of integrating ESD in policies

Costa Rica – Profile of success in embedding ESD into sustainable development policies

"In 2006, Costa Rica approved the National Commitment on the Decade of Education for Sustainable Development, agreeing to consider education as an indispensable aspect for generating cultural change towards sustainable development, and to promote the incorporation of environmental education into trans-disciplinary subjects. A study conducted by Tsuneki and Shaw on the impact of the more recent policy C-neutral 2021, which aims at making Costa Rica the first carbon neutral country, concludes that C-neutral 2021 has been a 'significant corner stone in the educational sector of Costa Rica, upgrading from already existing environmental education policy approach to recent ESD and CCE' (Tsuneki and Shaw, forthcoming: 1). The most recent comprehensive national policy instrument on climate change, the National Strategy on Climate Change (Estrategia Nacional de Cambio Climático), includes capacity-building and public awareness, education and cultural change, with the aim of increasing environmental literacy. The example of Costa Rica shows how sustainable development policies that include ESD can help to reinforce and drive changes in education systems."

Kenya – Profile of success in embedding ESD in education policies

"Kenya's ESD Implementation Strategy, adopted in 2008, acknowledges that in order to have 'quality education and training for development', education should promote the development of productive and socially responsible individuals. This ESD strategy was aimed at promoting teaching and learning that inculcates appropriate values, behaviour and lifestyles for good governance and sustainability among other focuses. More recently, Kenya formulated a national ESD Policy Framework in 2012 through the Kenya Institute of Curriculum Development with the goal of enhancing sustainable development through transformative curriculum support materials. ESD has also been entrenched in the National Education Sector Programme to be implemented over five years (2013–2018), and is captured in Vision 2030, Kenya's roadmap to the realization of sustainable development, showing the importance of alignment with national sustainable development objectives."

Source: UNESCO (2014a: 50, 52)

Box 2.1.3. Crucial issues for the successful implementation of policies promoting ESD

Full policy coherence between the education sector and the sustainable development sector has to be ensured. The alignment of local and national sustainable development goals and strategies with education policy can drive the reorientation of education systems towards sustainable development. ESD has to be integrated coherently across relevant sectorial or sub-sectorial policies.

There is no 'one size fits all' version of ESD. Political and socio-cultural realities and specific environmental and ecological challenges make a contextual grounding of ESD essential. That is why we need locally and nationally relevant interpretations of ESD and related forms of education.

Political leadership is crucial for ESD. Coordinating bodies and mechanisms have proved to be supportive for integrating ESD in the education systems. Therefore, policies should create such structures at different levels. Furthermore, governments should set targets for ESD.

ESD is promoted not only by formal government organizations, but also to a large extent by NGOs, which often work in non-formal and informal learning settings. International, national and local policies should support NGOs in facilitating these activities, by providing funding, but also by creating networks and enabling processes of social learning.

Source: UNESCO (2014a)

2.2. Integrating ESD in curricula and textbooks

ESD has to be integrated in all curricula of formal education, including early childhood care and education, primary and secondary education, technical and vocational education and training (TVET), and higher education. ESD concerns the core of teaching and learning and should not be considered as an add-on to the existing curriculum. Mainstreaming ESD requires integrating sustainability topics into the curricula, but also sustainability-related intended learning outcomes.

"Curricula need to ensure that all children and young people learn not just foundation skills, but also transferable skills such as critical thinking, problem solving, advocacy and conflict resolution, to help them become responsible global citizens" (UNESCO, 2014c: 36). From the development of sustainability curricula it is expected to "improve the capacity of our education systems to prepare people to pursue sustainable development" (United Nations, 2012: para 230).

The monitoring and evaluation of the DESD has highlighted many existing good examples of integrating ESD in curricula (see box 2.2.1). Reviews of official curriculum documents show that "many countries now include sustainability and/or environmental themes as one of the general goals of education" (UNESCO, 2014a: 30). In primary and secondary education most progress has been made in curriculum development towards ESD. "Close to 40% of Member States indicate that their greatest achievement over the DESD has been the integration of ESD into formal curricula, with another fifth describing specific school projects as being their most important contributions to ESD" (UNESCO, 2014a: 82).

Box 2.2.1. Examples of integrating ESD into curricula

Mauritius – National Curriculum Framework
"The Maurice Ile Durable policy was introduced in 2008 with the objective of making Mauritius a world model of sustainable development by 2020. Education is one of its five pillars, with a multi-stakeholder working group put in place to integrate ESD into all levels of education. The goal is to reorient the education system towards sustainability, build capacity at all levels and strengthen awareness of key issues. As Mauritius reports, ESD is now 'part of the National Curriculum Framework and because of the Maurice Ile Durable societal project, ESD is being addressed by many formal and non-formal institutions/organizations'. As a result of this policy, different ministries such as the Ministry of Environment and Sustainable Development and the Ministry of Education and Human Resources Development have come to cooperate more closely for a more integrated approach. Now already a UNESCO Climate Change Education for Sustainable Development pilot country, Mauritius could become an exemplar country for ESD when the Maurice Ile Durable policy is fully implemented."

Togo – Quality Education for a Sustainable Future
"In Togo, the educational policy framework (Lakalaka) is grounded in national culture and includes a new, ESD-oriented curriculum entitled Quality Education for a Sustainable Future."

Finland – Reforming the national core curricula for pre-school and basic education
"Finland is reforming the national core curricula for pre-school and basic education to support and promote sustainable development and well-being following the value basis of education, where the necessity of a sustainable way of living and eco-social understanding is emphasized. The aim is to support all students in developing the knowledge, skills, values and attitudes that promote their ability to understand the importance of a sustainable future."

Manitoba, Canada – Profile of successful leadership
"In Manitoba, ESD is a priority action area of the government and has been embedded in the overall purpose of primary and secondary education. It is now government policy 'to ensure that all Manitoba's children and youth have access to an array of educational opportunities such that every learner experiences success through relevant, engaging and high quality education that prepares them for lifelong learning and citizenship in a democratic, socially just and sustainable society'. This statement is included in the mission of the provincial Ministry of Education and Advanced Learning. In response to this policy commitment, ESD has been integrated into the curriculum from kindergarten up to 12th grade with specific learning outcomes identified in science, social studies, health and physical education. Building the capacity of educators and school leaders, as well as dedicated funding to ensure the development of sustainability practices, principles, programmes and partnerships, helps schools to embed sustainability into their classrooms, operations and management."

Source: UNESCO (2014a: 50, 51, 53)

The German Curriculum Framework for Education for Sustainable Development (ESD) contains topics, competencies and concrete examples for primary education, all subjects of secondary education and vocational training. It is the result of the joint initiative of the Standing Conference of the Ministers of Education and Cultural Affairs and of the Federal Ministry for Economic Cooperation and Development, in cooperation with the 16 German federal states and civil society (KMK/BMZ, 2016).

The GAP's Priority Action Area 1, "Advancing policy", calls for "integrating ESD into curricula and national quality standards" (UNESCO, 2014b: 16). For facilitating the needed curriculum change, some actions are of central importance.

A significant driver for changes in curriculum and teaching practice can be the increase in student demand for a sustainability-centred education. Therefore, this demand should be monitored more closely (UNESCO, 2014a).

Across all levels and types of education, curriculum change should be further advanced to involve more ESD-relevant content, learning objectives and learning practices. Kindergartens, schools and institutions of TVET and higher education should not only offer individual courses, but should ensure that all learners can develop the knowledge, attitudes and competencies needed to respond to sustainability challenges throughout their professional and personal lives (UNESCO, 2014a). For this to occur,

Box 2.2.2. Suggested actions for fostering curriculum change

Ongoing efforts to deepen the understanding of quality education to include relevance, purpose and values for sustainability

Further research, assessment and sharing of experience on how curriculum change has been approached

Institutionalization of ESD, including the investment of staff and financial resources

Instilling ESD in competencies, professional standards, certification and accreditation of teachers and teacher education institutions

More support for teachers in the classroom (e.g. guidelines for the creation and evaluation of ESD materials, mechanisms to support knowledge-sharing that empowers local teachers, ESD facilitators and in-service trainers)

Increased capacity-building for policy-makers, education leaders, and educators

Flexibility in curriculum policy that allows primary and secondary schools to develop content and projects that are locally relevant

Source: UNESCO (2014a)

ESD should not, first of all, be seen as an adjectival education or an isolated stand-alone subject. For instance in school education, it must become an integral part of teaching and learning of core subjects (e.g. math, sciences, social studies and languages). Second, it is important that learning objectives, teaching and learning methods and assessment measures are closely aligned so that they reinforce each other. Third, progressive learning objectives should be established, i.e. learning that builds competencies from level to level (scaffolding).

2.3. Integrating ESD in teacher education[13]

Educators are powerful change agents who can deliver the educational response needed to achieve the SDGs. Their knowledge and competencies are essential for restructuring educational processes and educational institutions towards sustainability.

Teacher education must meet this challenge by reorienting itself towards ESD. The monitoring and evaluation of the DESD has identified many good examples of integrating ESD in teacher education (see box 2.3.1) and shown that the support of teachers has been a key condition to the successful adoption and implementation of ESD (UNESCO, 2014a).

However, efforts to prepare teachers to implement ESD have not advanced sufficiently. More work still needs to be done to reorient teacher education to approach ESD in its content and its teaching and learning methods. That is why the GAP's Priority Action Area 3 focuses on building capacities of educators. One of the proposed actions in this area is to integrate ESD into pre-service and in-service teacher education programmes (UNESCO, 2014b).

In order for teachers to be prepared to facilitate ESD, they must develop sustainability key competencies (including knowledge, skills, attitudes, values, motivation, and commitment). But in addition to general sustainability competencies, they also need ESD competencies, which can be described as a teacher's capacity to help people develop sustainability competencies through a range of innovative teaching and learning practices (see box 2.3.2).

Box 2.3.1. Country examples of good practice of teacher education programmes integrating ESD

Jamaica – Pre-service teachers learning through ESD community action projects

"Literature and Education for Sustainable Development is a core course for students pursuing the graduate programme in Language Education, and an elective for students in the graduate programme for Teacher Education at the University of the West Indies, Mona, Jamaica. The course aims to introduce students to the concept and principles of sustainable development and to provide them with opportunities to explore the role of ESD in creating a sustainable world. There are three components to the course:

1. A global framework in which students examine local and global sustainability challenges.

2. The study of literature as a means to develop empathy, give students a sense of community, clarify values, understand sustainability from multiple perspectives, and motivate them to act.

3. Engagement in community action projects. As a major assignment, students are required to address sustainability challenges in their community. Students have chosen to address issues of violence, poverty and environmental degradation through peace projects, working with the homeless, school gardening and bee-keeping, to name a few. Students have found the course most useful as they attend to real-world problems and work closely with their communities. They come to understand that they can learn from, as well as help improve the quality of life in their community."

Greece – In-service teacher training

"The Ministry of Education established 46 Centres for Environmental Education and Sustainability under the Regional Directorates of Education all over the country. The projects these centres are running aim at training teachers in order to implement projects related to ESD in their schools. During the 2011 school year, 184 seminars for 8,745 teachers of primary and secondary education took place."

Source: UNESCO (2014a: 92, 97)

These elements of ESD competencies are described in much more detail in a number of different conceptual frameworks of teacher competencies in the field of ESD, such as the CSCT model (Sleurs, 2008), the UNECE model (UNECE, 2012), the KOM-BiNE model (Rauch and Steiner, 2013), and the approach by Bertschy *et al.* (2013). Teacher education programmes must be further developed to meet these standards.

To facilitate the development of ESD competencies in teacher education, changes in the content and structure of pre-service and in-service teacher education are necessary. ESD should provide the fundamental orientation to teacher education programmes. Subject disciplines, subject didactics, educational sciences and practice-oriented studies should

13. This chapter is based mainly on *Teacher education for a sustainable development from pilot projects and initiatives to new structures. A memorandum on reorienting teacher education in Germany, Austria and Switzerland* by the German-speaking network Teacher Education for Sustainable Development (2015).

include methodology principles and subject knowledge from ESD (see box 2.3.3).

Learning on the basis of real societal challenges in local contexts requires cooperation with external partners. Modules should thus enable access to external partners (such as communities, non-formal educational institutions and ESD networks) and include possibilities for project-oriented collaboration.

Box 2.3.2. Learning objectives for teachers to promote ESD

Know about sustainable development, the different SDGs and the related topics and challenges

Understand the discourse on and the practice of ESD in its local, national and global context

Develop their own integrative view of the issues and challenges of sustainable development by taking into account the social, ecological, economic and cultural dimensions from the perspective of the principles and values of sustainable development, including that of intergenerational and global justice

Take disciplinary, interdisciplinary and transdisciplinary[14] perspectives on issues of global change and their local manifestations

Reflect on the concept of sustainable development, the challenges in achieving the SGDs, the importance of their own field of expertise for achieving the SDGs and their own role in this process

Reflect on the relationship of formal, non-formal and informal learning for sustainable development, and apply this knowledge in their own professional work

Understand how cultural diversity, gender equality, social justice, environmental protection and personal development are integral elements of ESD and how to make them a part of educational processes

Practice an action-oriented transformative pedagogy that engages learners in participative, systemic, creative and innovative thinking and acting processes in the context of local communities and learners' daily lives

Act as a change agent in a process of organizational learning that advances their school towards sustainable development

Identify local learning opportunities related to sustainable development and build cooperative relationships

Evaluate and assess the learners' development of cross-cutting sustainability competencies and specific sustainability-related learning outcomes

Additionally, ESD requires internationalization as an element of teacher education, in particular by having international debates about ESD and discussions about cultural diversity as integral components of modules. This means that students should be given the opportunity to study abroad, facilitating practical experiences.

To integrate ESD more fully into teacher education, the content and the organization of teacher education programmes should be developed with the participation of key stakeholders such as students, teachers, local NGOs and ESD experts. To facilitate innovation, it is crucial for the educational institution to have the necessary structural conditions as well as the freedom to engage in organizational learning processes.

As there are still many teachers who have not learned about ESD in their pre-service training, they need to have access to in-service training on the subject. On one hand, it opens up opportunities for developing the necessary knowledge and competencies to participate in the process of sustainable development. On the other, this professional development is a prerequisite for reorienting educational processes and educational institutions. Here it is essential that professional development for ESD be available to more than one teacher per institution, and that it be recognized by the educational systems regarding applications, promotions, etc. National and regional centres of expertise for ESD can also develop opportunities for professional development and advisory services, using the potential of government and non-governmental organizations, universities and other institutions of higher education.

Box 2.3.3. Possible modules of a teacher education curriculum with ESD as a key element

Basic concepts of sustainable development from a local, national and international perspective

ESD concepts from a local, national and international perspective

Disciplinary, interdisciplinary and transdisciplinary views of key examples of sustainability challenges

Project-oriented work on specific problems of local, national and global importance in cooperation with educational institutions and other (local) partners

Research-based analysis of ESD processes in different learning settings (such as schools, colleges or non-formal educational institutions)

Practical experiences with ESD approaches and their critical reflection

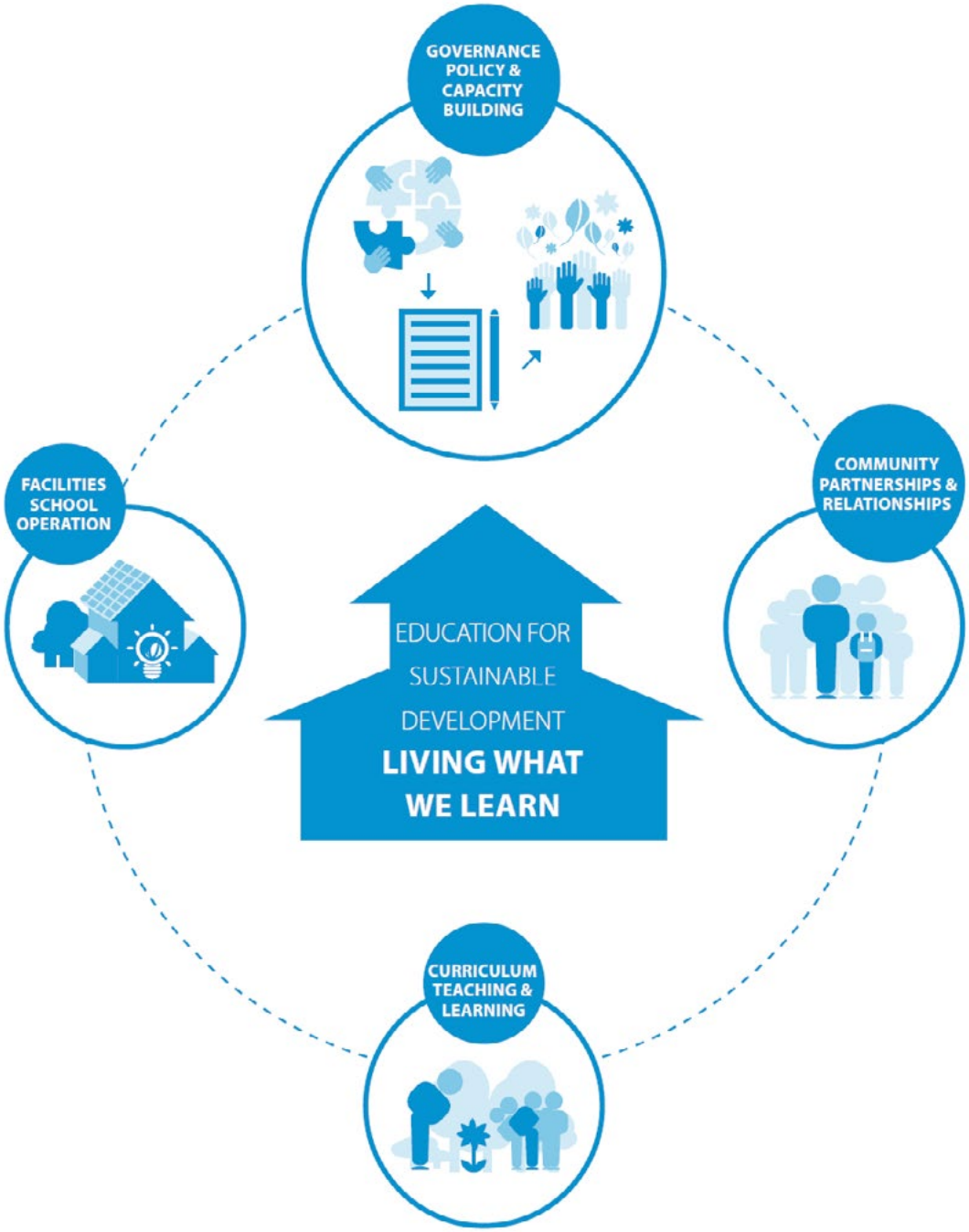
14. Interdisciplinarity means cooperation among different scientific disciplines and the "integration of different disciplinary perspectives, theories and methods" Transdisciplinarity refers to "cooperation with experts in possession of practical experience from outside the academic world" (Godemann, 2006: 52).

2.4. Delivering ESD in the classroom and other learning settings

2.4.1 Whole-institution approach

ESD is not only about teaching sustainable development and adding new content to courses and training. Schools and universities should see themselves as places of learning and experience for sustainable development and should therefore orient all their processes towards principles of sustainability. For ESD to be more effective, the educational institution as a whole has to be transformed. Such a whole-institution approach aims at mainstreaming sustainability into all aspects of the educational institution. It involves rethinking the curriculum, campus operations, organizational culture, student participation, leadership and management, community relationships and research (UNESCO, 2014a). In this way, the institution itself functions as a role model for the learners. Sustainable learning environments, such as eco-schools or green campuses, allow educators and learners to integrate sustainability principles into their daily practices and facilitate capacity-building, competency development and value education in a comprehensive manner.

Figure 1. The whole-institution approach (UNESCO 2014a: 89)



The monitoring and evaluation of the DESD has revealed many good examples of whole-institution approaches (see box 2.4.1).

Given the importance of transforming the whole educational institution, the GAP's Priority Action Area 2 ("Transforming learning and training environments: Integrate sustainability principles into education and training settings") calls for "promoting whole-institution approaches to ESD in schools and all other learning and training settings" (UNESCO, 2014b: 18). Thus, whole-institution approaches should be promoted at all levels and in all settings. Schools and other educational institutions, and public and private sector organizations, are encouraged to implement sustainability plans or strategies. The already existent experiences with whole-institution approaches in the areas of higher education and secondary schools need to be scaled up and expanded to other levels and types of education, such as early childhood education, TVET and non-formal education for youth and adults. Key elements for a whole-institution approach are summarized in box 2.4.2.

Box 2.4.1. Examples of whole-institution approaches

Australia – Australian Sustainable Schools Initiative
"The Australian Sustainable Schools Initiative is just one example of an effort to encourage schools to take a whole-school, whole-system approach to Education for Sustainability (EfS). First piloted in 2005, this initiative successfully contributed to a growing appreciation of a whole-school approach to ESD. Among its outcomes, it demonstrated: a greater depth and breadth in EfS projects undertaken; an enhanced curriculum integration of EfS; organizational, financial and wider environmental benefits; and links with broader sustainability understandings and goals. In short, participation in the Australian Sustainable Schools Initiative helped schools to develop a more effective and comprehensive EfS programme."

Bhutan – Green Schools for Green Bhutan Programme
"Integrated into the Green Bhutan Programme since 2009, the Green Schools are part of the Ministry of Education's nationwide reform initiative: Education Gross National Happiness. The green school concept has also become an integral part of a Performance Management System (PMS), the goal being the boosting of school performance and the delivery of quality education. The school PMS draws on the schools' self-assessment tools, oriented to take in Gross National Happiness and ESD values and processes. UNICEF Bhutan has partnered with the government to help roll out the green schools initiative and has included a nationwide teacher-training initiative translating the principles of green schools into practice. Thus far, results have been positive: 'Several schools have reported visible and substantial improvements especially in terms of physical ambience, mindfulness, students' understanding of, and regard for, culture, nature, etc.' (Bhutan Ministry of Education, 2012)."

Source: UNESCO (2014a: 89, 90)

Box 2.4.2. Key elements for whole-institution approaches

An institution-wide process that enables all stakeholders – leadership, teachers, learners, administration – to jointly develop a vision and plan to implement ESD in the whole institution.

Technical and financial support to the institution to support its reorientation, including for instance the provision of relevant good practice examples, training for leadership and administration, the development of guidelines and associated research.

Inter-institutional networks that facilitate mutual support such as peer-to-peer learning on a whole-institution approach, and increase the visibility of the approach to promote it as a model for adaptation.

Source: UNESCO (2014b)

While all elements of the whole-institution approach are important, at the core of delivering ESD in the classroom and other learning settings are interactive, integrative and critical forms of learning – an action-oriented transformative pedagogy.

2.4.2. Action-oriented transformative pedagogy

ESD is about empowering and motivating learners to become active sustainability citizens who are capable of critical thinking and able to participate in shaping a sustainable future. Pedagogical approaches that are adequate to this aim are learner-centered, action-oriented and transformative (see box 2.4.3).

The pedagogical approaches represent the general character or guiding principles of designing learning processes in ESD; specific methods in line with these principles are needed to facilitate the learning process. In ESD, methods that foster competencies through active learning are favoured. Certain methods can be particularly recommended for ESD. (Some of these were cited earlier in the boxes in Chapter 2, already adapted to specific SDGs.) (See box 2.4.4)

These participatory teaching and learning methods empower learners to take action for sustainable development. When teaching and learning methods are chosen for a specific setting, they have to match the needs of the learner group (e.g. based on age, prior knowledge, interests, abilities); the context in which the learning takes place (e.g. space in the curriculum, pedagogical climate, cultural traditions); and the resources and support available (e.g. teacher competencies, teaching materials, technology, money).

Box 2.4.3: Key pedagogical approaches in ESD

A learner-centred approach
Learner-centred pedagogy sees students as autonomous learners and emphasizes the active development of knowledge rather than its mere transfer and/or passive learning experiences. The learners' prior knowledge as well as their experiences in the social context are the starting points for stimulating learning processes in which the learners construct their own knowledge base. Learner-centred approaches require learners to reflect on their own knowledge and learning processes in order to manage and monitor them. Educators should stimulate and support those reflections. Learner-centred approaches change the role of an educator to one of being a facilitator of learning processes (instead of being an expert who only transfers structured knowledge) (Barth, 2015).

Action-oriented learning
In action-oriented learning, learners engage in action and reflect on their experiences in terms of the intended learning process and personal development. The experience might come from a project (in-service learning), an internship, the facilitation of a workshop, the implementation of a campaign, etc. Action-learning refers to Kolb's theory of the experiential learning cycle with the following stages: 1. Having a concrete experience, 2. Observing and reflecting, 3. Forming abstract concepts for generalization and 4. Applying them in new situations (Kolb, 1984). Action-learning increases knowledge acquisition, competency development and values clarification by linking abstract concepts to personal experience and the learner's life. The role of the educator is to create a learning environment that prompts learners' experiences and reflexive thought processes.

Transformative learning
Transformative learning can best be defined by its aims and principles, rather than by any concrete teaching or learning strategy. It aims at empowering learners to question and change the ways they see and think about the world in order to deepen their understanding of it (Slavich and Zimbardo, 2012; Mezirow, 2000). The educator is a facilitator who empowers and challenges learners to alter their worldviews. The related concept of transgressive learning (Lotz-Sisitka et al., 2015) goes one step further: It underlines that learning in ESD has to overcome the status quo and prepare the learner for disruptive thinking and the co-creation of new knowledge.

To create diverse and cross-boundary learning settings and draw holistic, comprehensive pictures of the SDGs, educational institutions and educators should foster partnerships at the local, national and international level. It is important to acknowledge that adequate responses to sustainability challenges cannot be limited to single perspectives, disciplines or ways of knowing. Partnerships, involving a range of societal actors such as businesses, NGOs, public institutions, policy-makers and/or individuals, facilitate new possibilities for learning and become a source of creativity and innovation. In a dialogue or a project that includes cooperation with a partner in practice, students can learn about real-world challenges and benefit from the partners' expertise and experiences. At the same time, partners too can be empowered and their capacity as critical agents of change can be increased. Partnerships between learners from around the world foster the exchange of different perspectives and knowledge on the same topics. For example, virtual courses can provide an environment to practice a global dialogue and to foster mutual respect and understanding (see box 2.4.5).

Box 2.4.4. Key methods for learning for the SDGs

Collaborative real-world projects, such as service-learning projects and campaigns for different SDGs

Vision-building exercises such as future workshops, scenario analyses, utopian/dystopian story-telling, science-fiction thinking, and forecasting and backcasting

Analyses of complex systems through community-based research projects, case studies, stakeholder analysis, actors' analysis, modelling, systems games, etc.

Critical and reflective thinking through fish-bowl discussions, reflective journals, etc.

Box 2.4.5. An example of an intercultural dialogue between learners

Young Masters Programme: Flexible learning approach

The Young Masters Programme is a global web-based education and learning network for school students aged 16 to 18 and their teachers. Students and teachers are brought together in virtual classrooms where they have the opportunity to build understanding and cooperation on sustainability issues. In the virtual classrooms, students learn from each other by sharing first-hand information with their peers from different countries. They gain an understanding of common sustainability challenges and what different local perspectives and solutions exist. So far, more than 30,000 students and 3,000 teachers from over 116 countries have completed the Young Masters Programme. An evaluation of the programme reports positive outcomes for students, teachers and schools including, "expanded environmental knowledge, improved communication skills, engagement in extra-curricular environmental activities, extensive international friendships, and enhanced computer skills" (McCormick et al., 2005).

Source: UNESCO (2014a: 88)

An action-oriented transformative pedagogy also contributes to achieving the aims of the GAP's Priority Action Area 4 ("Empowering and mobilizing youth"), which calls for "more quality e-learning opportunities for youth; youth participating in and contributing to ESD advocacy, policy

development and implementation at local, national and international levels; and more youth-led ESD activities" (UNESCO, 2014b: 23).

2.5. How to assess ESD learning outcomes and the quality of ESD programmes?

Assessing the outcomes of ESD and of efforts that seek to reorient education systems is an important challenge to be addressed (UNESCO, 2014a). ESD programmes and initiatives should be assessed at multiple levels. Here, we can mention the following approaches: large-scale assessments for learning outcomes; assessment of learning outcomes at the individual level; national assessments more aligned with national educational priorities; contextualized school and institutional assessments to improve implementation and delivery; the development of formative assessment practices to empower teachers to gauge specific pedagogical practices in classrooms; and personal self-assessment of individual progress.

There are already some examples of how ESD elements are being included in approaches to large-scale assessments (see box 2.5.1).

Box 2.5.1. Examples of large-scale assessments including ESD elements

Assessing the exposure to sustainable development
"International assessments of learning attainments are beginning to incorporate aspects of ESD. The PISA 2006 assessment focused on science literacy and, among other things, compiled information about the inclusion of environmental science topics in the school curriculum (OECD, 2009). PISA found that 98% of students in OECD countries attend schools in which environmental topics (e.g. pollution, environmental degradation, relationships between organisms, biodiversity and conservation of resources) are taught. While the curricular locations of environmental science topics may differ from one system to the next, most (lower) secondary students in OECD countries have been exposed to, and are required to master, a set of key environmental themes. Among students in non-OECD countries, the opportunity to learn about the environment varies to a much greater extent."

Assessing sustainability-related choices and actions
"Even more challenging to determine is whether knowledge and learning attainments are leading to sustainability-related choices and actions. There are some promising initiatives in this area: for example, the International Civics and Citizenship Study (ICCS) across 38 countries in 2008 and 2009, sponsored by the International Association for the Evaluation of Educational Achievement, has found a positive correlation between citizenship education with engagement of students in active citizenship (Schulz et al., 2010)."

Source: UNESCO (2014a: 98)

In 2013, the PISA Governing Board decided to explore an assessment of "Global Competence" (OECD, 2016) in the 2018 PISA assessment. Global competence is defined by the OECD as

> "the capacity to analyse global and intercultural issues critically and from multiple perspectives, to understand how differences affect perceptions, judgments, and ideas of self and others, and to engage in open, appropriate and effective interactions with others from different backgrounds on the basis of a shared respect for human dignity." (OECD, 2016: 4)

The test, developed in consultation with OECD member countries and expert advisors, will assess through cognitive testing young people's knowledge and understanding of global issues; intercultural knowledge and understanding; and analytical and critical thinking skills. Additionally, skills such as the ability to interact respectfully, appropriately and effectively, empathy and flexibility as well as attitudes such as openness towards people from other cultures, respect for cultural otherness, global-mindedness and responsibility will be analysed through self-reported data in the student questionnaire (OECD, 2016: 6). In this way the test will "offer the first, comprehensive overview of education systems' success in equipping young people to support the development of peaceful, diverse communities" (OECD, 2016: 3). At the meeting of G7 Education Ministers that took place in Kurashiki, Japan on 14 May 2016, ministers noted that this assessment may well provide a metric to measure progress in this area.

PISA and other large-scale assessments, for instance the International Civic and Citizenship Education Study (ICCS) 2016[15], can make important contributions to better understanding of the development of ESD learning outcomes, and they can increase the visibility of ESD's contributions to quality education. They can also provide the data needed for monitoring two thematic indicators of Target 4.7: number 26, "Percentage of students by age group (or education level) showing adequate understanding of issues relating to global citizenship and sustainability", and 27, "Percentage of 15-year-old students showing proficiency in knowledge of environmental science and geoscience" (UNESCO, 2015b).

15. http://iccs.iea.nl

Assessment and evaluation in ESD can serve different purposes (see box 2.5.2).

Box 2.5.2. Different purposes of assessment in ESD at the individual level

Gather information and record learners' progress and achievement toward intended learning outcomes

Communicate progress to learners, identify strengths and areas for growth, and use this information to set learning goals

Provide feedback about the success of teaching and learning processes to help plan, implement and improve these processes

In formal education, guide decisions about the learner's grading and academic and occupational choices

There are many ways of assessing learning outcomes. The approach taken will depend on the context (e.g. the characteristics of the education system) and on how ESD is delivered: in formal education, for example, across the curriculum or within a specific subject, or another modality. Methods of assessment will need to be aligned with the learning objectives and with teaching and learning practices. Given the variety of learning objectives and competencies ESD entails, a range of methods is likely to be required to assess learning accurately.

ESD involves wide-ranging transformative purposes. Educators should therefore consider these broader purposes. They should go beyond using exclusively the assessment *of* learning; they should include assessment *for* learning and assessment *as* learning. Educators should use a mix of traditional assessment methods and more reflective and performance-based methods, such as self- and peer assessment, that capture learners' insights on such aspects as personal transformation, deepened understanding of critical inquiry, and engagement and civic agency. Feedback from educators, peer feedback and self-evaluation (e.g. using reflective journals or portfolios) empower learners to monitor their own learning processes and to identify possibilities for improvement.

In addition to assessing learning outcomes, ongoing monitoring and assessing the quality of ESD programmes are also important. Monitoring and assessment can focus on programmatic aspects (e.g. learning expectations, resources, teaching competencies, learning environment); processes (e.g. teaching practices, learning resources, learners' engagement); outcomes (e.g. knowledge, competencies, values and attitudes, transformative effect); and contextual considerations.

Carrying out an effective assessment of ESD programmes should be integrated into assessments that are already present, where possible, and it requires careful attention to a range of factors. Assessment purposes and indicators need to be clearly defined, the nature of the teaching/learning population and the context need to be considered, and the kind of information that constitutes acceptable evidence and methods of collecting data need to be determined.

The results of a programme assessment can be used for various purposes (see box 2.5.3).

Box 2.5.3. Different purposes of programme assessment

Identifying programmatic limitations

Targeting specific areas for improvement

Reporting local, national, international trends and outcomes

Evaluating programme effectiveness

Promoting accountability and transparency

Monitoring and evaluation must be improved to secure the evidence for continued and expanded investment in ESD, and for reflexive engagement with ESD as an emerging educational reorientation process. The development of indicator frameworks that establish standards for ESD learning outcomes is therefore critical.

3. Conclusions

ESD can contribute to achieving the SDGs by, first, developing cross-cutting sustainability competencies that are needed to deal with many different sustainability challenges and to relate the different SDGs to each other. Second, ESD can equip learners with the specific cognitive, socio-emotional and behavioural learning outcomes that enable them to deal with the particular challenges of each SDG.

To make it possible for everyone around the world to take action in favour of the SDGs, all educational institutions must consider it their responsibility to deal intensively with sustainable development issues, to foster the development of sustainability competencies and to develop the specific learning outcomes related to all SDGs. Therefore it is vital not only to include SDG-related contents in the curricula, but also to use action-oriented transformative pedagogy.

Education officials, policy-makers, educators, curriculum developers and others are called upon to rethink education in order to contribute to the achievement of the SDGs within their timeframe, between now and 2030. This guidance provides an orientation to the sustainability competencies and specific cognitive, socio-emotional and behavioural learning outcomes that are relevant to this goal, and it outlines what is needed to implement learning for the SDGs through ESD.

Annex 1. Selected online practices and resources

SDG websites

Human Rights and the 2030 Agenda for Sustainable Development http://www.ohchr.org/EN/Issues/MDG/Pages/The2030Agenda.aspx

OECD and the Sustainable Development Goals: Delivering on universal goals and targets https://www.oecd.org/dac/sustainable-development-goals.htm

SDG Indicators http://unstats.un.org/sdgs/indicators/indicators-list/

The Guardian: Sustainable development goals: all you need to know https://www.theguardian.com/global-development/2015/jan/19/sustainable-development-goals-united-nations

The UN Sustainable Development Knowledge Platform sustainabledevelopment.un.org https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals

UNESCO and Sustainable Development Goals http://en.unesco.org/sdgs

UN Sustainable Development / SDGs http://www.un.org/sustainabledevelopment http://www.un.org/sustainabledevelopment/sustainable-development-goals

World Economic Forum: What are the Sustainable Development Goals? https://www.weforum.org/agenda/2015/09/what-are-the-sustainable-development-goals

Classroom, curriculum and youth work resources

British Council: Sustainable Development Goals resource https://schoolsonline.britishcouncil.org/sites/default/files/sdg_education_pack_v3.pdf

Gaia Education's Design for Sustainability E-learning Programme http://www.gaiaeducation.org/index.php/en/online

GlobalGiving: Crowdfunding for the SDGs https://www.globalgiving.org/sdg/

Green Pack: Teaching material on sustainability issues http://education.rec.org/green-pack.html

OpenLearn. The Open University: Material for self-study on all kinds of topics http://www.open.edu/openlearn/

OXFAM: A selection of suggested teaching ideas around the SDGs https://www.oxfam.org.uk/education/resources/sustainable-development-goals

Sustainability Gamepedia: A database of games related to sustainability http://www.games4sustainability.org/gamepedia/

Teaching and Learning for a Sustainable Future: Resources for teachers about teaching approaches as well as classroom activities on diverse topics related to sustainability http://www.unesco.org/education/tlsf/mods/theme_gs.html

Teach UNICEF: Collection of teacher resources on the SDGs https://teachunicef.org/teaching-materials/topic/sustainable-development-goals

The Goals.org: Free global education and learning portal on sustainable development solutions http://www.thegoals.org

The Lazy Person's Guide to Saving the World http://www.un.org/sustainabledevelopment/takeaction

The Story of Stuff: An online resource that investigates the humanity's unsustainable use of materials http://storyofstuff.org

The World We Want. A Guide to the Goals for Children and Young People http://www.unicef.org/agenda2030/files/TWWW_A4_Single_Page_LowRes_English.pdf

The Youth resource pack from MYCI: Methodolgies for introducing the SDGs to young people in an engaging and informative manner http://www.youth.ie/sites/youth.ie/files/SDGs_Youth_Resource%20_Pack.pdf

UNESCO: Good Practices in Teacher Education Institutions http://unesdoc.unesco.org/images/0015/001524/152452eo.pdf

World's Largest Lesson: Find everything you need to introduce the SDGs to young people, take part and take action http://worldslargestlesson.globalgoals.org

Young Masters Programme on Sustainable Development: Online courses and international exchange between students on sustainable development http://www.goymp.org/en/frontpage

YUNGA Challenge Badges: Developed in collaboration with UN agencies, civil society and other organizations, YUNGA Challenge Badges aim to raise learners' awareness, educate and motivate them to change their behaviour and become active agents of change in their local community. The series can be used by teachers in school classes as well as by youth leaders. http://www.fao.org/yunga/resources/challenge-badges/en/

Organizations and initiatives

Eco-Schools Networks http://www.ecoschools.global

Food and Agriculture Organization of the United Nations (FAO) http://www.fao.org/home/en/

GAIA Education http://www.gaiaeducation.org

Global Ecovillage Network http://www.gen.ecovillage.org

Global Footprint Network http://www.footprintnetwork.org/en/index.php/GFN/

Higher Education Sustainability Initiative (HESI) https://sustainabledevelopment.un.org/sdinaction/hesi

ICLEI: Local Governments for Sustainability http://www.iclei.org

International Institute for Sustainable Development http://www.iisd.org

Sustainable Development Solutions Network http://unsdsn.org

UNESCO ASPnet schools http://www.unesco.org/new/en/education/networks/global-networks/aspnet

United Nations Development Programme http://www.undp.org/

United Nations Environment Programme http://www.unep.org

World Federation of UNESCO Clubs, Centres and Associations (WFUCA) http://wfuca.org/

World Health Organization http://www.who.int/en/

Teaching and Professional Learning Support

Education for Sustainability Starter Kit http://www.sustainableschoolsproject.org/tools-resources/starter-kit

Education for Sustainable Development Toolkit http://www.esdtoolkit.org/

German Curriculum Framework Education for Sustainable Development http://ensi.org/global/downloads/Publications/418/Curriculum%20Framework%20ESD%20final%201.pdf

Guide to Education for Sustainability http://sustainableschoolsproject.org/sites/default/files/EFSGuide2015b.pdf

Guide to Quality and Education for Sustainability in Higher Education http://efsandquality.glos.ac.uk/

Shaping the future we want. UN Decade of ESD. Final report http://unesdoc.unesco.org/images/0023/002303/230302e.pdf

UNESCO's Roadmap to ESD. Implementing the Global Action Programme http://unesdoc.unesco.org/images/0023/002305/230514e.pdf

UNESCO's Teaching and Learning for a Sustainable Future http://www.unesco.org/education/tlsf/

Vanderbilt University's Guide for Teaching Sustainability https://cft.vanderbilt.edu/guides-sub-pages/teaching-sustainability

Whole-school approaches to sustainability: A review of models for professional development in pre-service teacher education (Australian Research Institute in Education for Sustainability) http://aries.mq.edu.au/projects/preservice/files/TeacherEduDec06.pdf

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Education for Sustainable Development Goals

Learning Objectives

To create a more sustainable world and to engage with issues related to sustainability as described in the Sustainable Development Goals (SDGs), individuals must become sustainability change-makers. They require the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Education is thus crucial for the achievement of sustainable development, and Education for Sustainable Development is particularly needed because it empowers learners to take informed decisions and act responsibly for environmental integrity, economic viability and a just society, for present and future generations.

This publication guides readers on how to use education, especially ESD, to achieve the SDGs. It identifies learning objectives, suggests topics and learning activities for each SDG, and describes implementation at different levels from course design to national strategies. The document aims to support policy-makers, curriculum developers and educators in designing strategies, curricula and courses to promote learning for the SDGs.

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4 QUALITY EDUCATION

Sustainable Development Goals