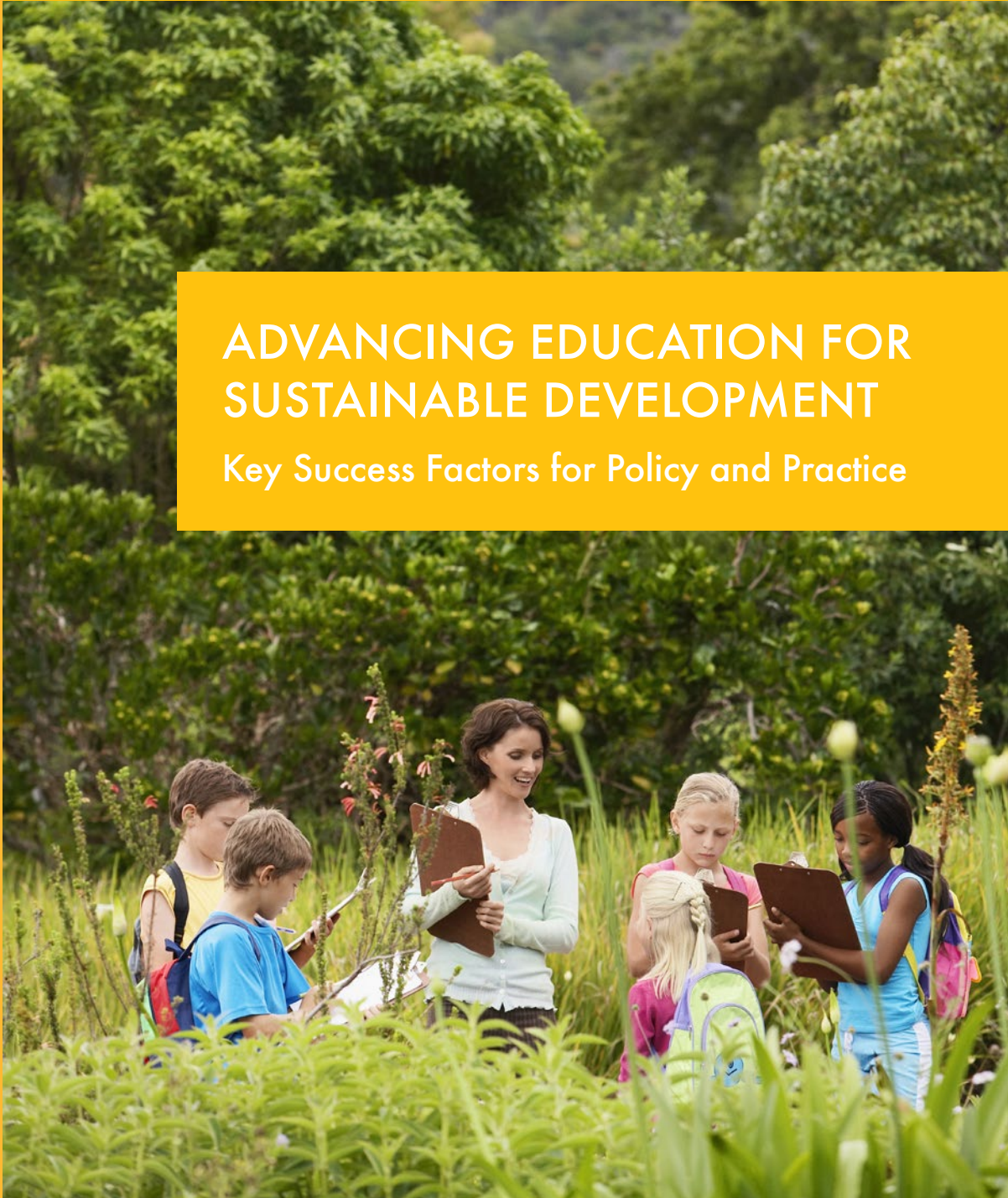


ADVANCING EDUCATION FOR  
SUSTAINABLE DEVELOPMENT  
Key Success Factors for Policy and Practice



## IMPRINT



### **AUTHOR:**

**Alistair Whitby,**  
Senior Policy Officer,  
Rights of Children and Youth,  
World Future Council

### **ADDITIONAL RESEARCH AND CONTENT:**

**Samia Kassid,** Senior Project Manager -  
Rights of Children and Youth, World Future Council  
**Wendy Werling,** Research Assistant -  
Rights of Children and Youth, World Future Council

### **LEGAL RESPONSIBILITY FOR CONTENT:**

**Alexandra Wandel**

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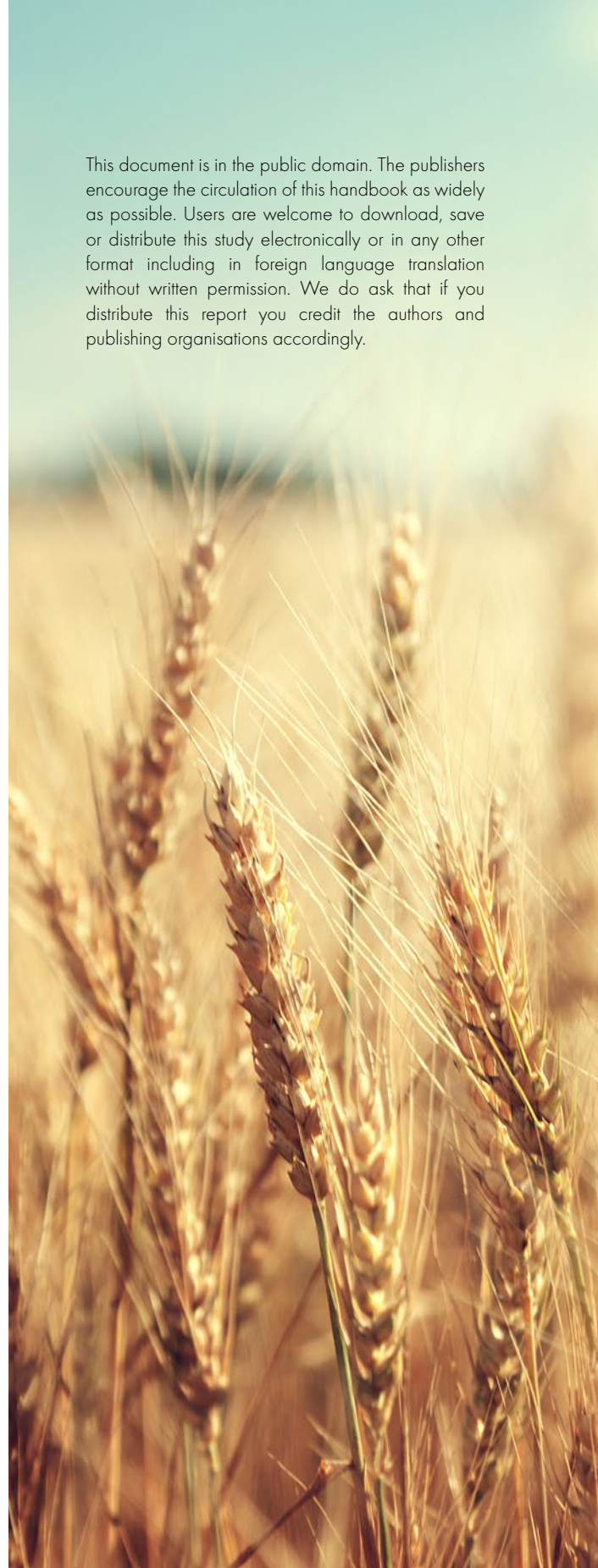
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## MESSAGES FROM AROUND THE WORLD



”

*Let us proceed together, building a world that is more equal and free, more sustainable and respectful of nature, and more inclusive and supportive. Within the UN system, Education for Sustainable Development has become a central concept representing a paradigm shift in how we respond to themes such as green jobs, gender equality, climate change, water management and resource governance in joined up ways. Education for Sustainable Development does not only address Sustainable Development Goal 4, “Quality Education”, but gives us the key tools to achieve the overall 2030 Agenda.*

**María Fernanda Espinosa Garcés**

President of the 73<sup>th</sup> UN General Assembly  
Former Councillor of the World Future Council

*Education systems need to be reformed to allow our young people to leave school motivated, creative and able to be self-reliant – mentally, socially and financially.*

*As this comprehensive policy handbook shows, Education for Sustainable Development encourages this transformation, empowering learners with the key skills, knowledge and self-belief to grow into their best selves. But for education to contribute effectively to the reorientation of societies towards sustainable development, we need to rethink teaching strategies, structures and practices both inside and outside the classroom. There is no time to lose!*

**Dr. Auma Obama**

Founder and Director of the ‘Sauti Kuu Foundation’,  
Councillor of the World Future Council

”



”

*Education for Sustainable Development, or ESD, means to rethink our model of learning and teaching; to give new answers to old questions; and to provide young people with the right tools to face today’s challenges, such as climate change, poverty, environmental pollution and migration. The importance of ESD has been duly recognised in the global agenda as a crucial element of Target 7 of SDG 4 on Education, but it is also a key enabler for the achievement of all 17 SDGs.*

**Stefania Giannini**

Assistant Director-General for Education, UNESCO

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## PREFACE

# Education for Sustainable Development: the best investment the world can make

There is no more powerful transformative force in the world today than quality education. It is an indispensable part of the development equation, promoting human rights and dignity, helping to eradicate poverty, fostering sustainability and building a better future for all. It empowers people to determine their own destiny.

In our world of nearly eight billion people with finite natural resources, individuals and societies have to learn to live together, taking responsible actions in the knowledge that not only do they impact people in other parts of the world, but have profound implications for future generations. The future health of the planet rests on creating an education that is at least as far-reaching, systemic, and transformative as the problems we face.

Education for Sustainable Development (ESD) does just that. It can play a key role in promoting positive values and sustainable lifestyles, and empowering people of all ages as actors for peace and inclusive social change. Learning is a key component of innovation, strengthening our collective ability to address complex global and local challenges. There is growing international recognition of ESD's potential as an integral and transformative element of quality education and lifelong learning and a key enabler of more just, inclusive, sustainable and resilient societies.

To do this ESD must continue to empower learners to transform themselves and their communities. Through its embrace of progressive pedagogies, technical and vocational training, and 21<sup>st</sup> century skills, ESD is helping learners developing fundamental skills, knowledge and competencies such as critical thinking, scenario planning and collaborative decision making, collaboration, and problem-solving.

As a result of these features there is now an increased global interest in the contribution ESD can make to the sustainable development agenda. Through the central role education, training and system-wide thinking has on almost every sustainable development challenge ESD is recognised as a cornerstone for reaching the global Sustainable Development Goals (SDGs). This means reaching out beyond traditional boundaries and creating effective, cross-sectoral partnerships and addressing children's rights including to a healthy environment as enshrined in the UN-Convention on the Rights of the Child.

Investment in quality education and ESD is an investment in our future. It has the potential to change the way we learn and improve the quality of life for people across the globe.

Together we must fight hard to ensure that it reaches every learner, instilling the values of peace, justice, equality, human rights and a genuine connection to the living world that sustains us all.



**Samia Kassid**  
Senior Project Manager –  
Rights of Children and Youth,  
World Future Council

# SUMMARY OF KEY CONCLUSIONS AND RECOMMENDATIONS

Results of the research, case studies, interviews, field visits and literature reviews explored in the handbook reveal 12 clusters of key conclusions which can serve as lessons or recommendations for stakeholders seeking to establish or enhance ESD policy and practice.

## 1 Political will for ESD policy and practice

The growing evidence-base for learning methods and educational outcomes associated with ESD can be used to build and maintain commitment among decision makers. This evidence base includes:

- the significant cost savings and benefits from engaging in sustainable investments and behaviour;
- the key role ESD can play in achieving the SDGs;
- the improved learning outcomes and physical, cognitive, psychological and wellbeing benefits associated with ESD learning processes;
- the significant demand from both teachers and learners to engage with sustainable development issues and content; and
- the central role that quality education and ESD play in many aspects of human development.

## 2 ESD policy mandates and institutional coordination systems

ESD policies, laws, frameworks and mandates – and the different models of coordination frameworks introduced to move them from paper to practice – are important for providing the institutional support needed for stakeholders to implement ESD. Effective models include: national ESD strategies and frameworks, ESD focal points, national coordinating bodies and inter-departmental committees. Operationalising ESD at the school or institution level through strong mechanisms that spread accountability, responsibility and competencies is also necessary for seeing strong results on the ground.

## 3 Multi-stakeholder collaborative ESD partnerships

ESD partnerships can be instrumental at all stages of the policy cycle, helping to build coalitions and political will, assisting the drafting of legislation, supporting delivery and monitoring progress. ESD learning is increasingly taking place in a wide variety of contexts and locations with a blending of formal, non-formal and informal education with input from multiple actors from local communities, civil society and the private sector. These partnerships provide a source of energy, creativity and innovation in education, teaching and learning. Hybrid stakeholder groups, regional centres of expertise, media partnerships and a diversity of ESD outreach tools are showing their usefulness and should continue to be introduced, supported and expanded.

## 4 ESD curriculum revisions and integration practices

Whether through integration or redesign the national curriculum often serves as the most significant piece of educational policy available to secure the implementation of ESD. Successful approaches include using ESD as a transversal theme to facilitate interdisciplinary thinking, introducing 'adjectival' learning approaches such as climate change or peace education, and system-wide revisions that use ESD as a holistic, interdisciplinary and integrated concept around which the curriculum is developed. These approaches to ESD encourage students to develop awareness of the different dimensions of sustainable development including global citizenship, justice, ethics and environmental stewardship as well as the connections between them.

## 5 Advancing ESD-aligned transformative pedagogies

Progressive pedagogies that are active, transformative, learner-centred, participatory and connected to local communities and cultures are fundamental to the success of ESD, often having a stronger impact than sustainable development content. Techniques such as group discussions, problem-based learning, critical reading and writing, debates, vision-building exercises, role-playing, outdoor field work, modelling and case studies are increasingly employed. These approaches are highly valued as they encourage learners to ask critical reflective questions, clarify values, envision more positive and sustainable futures and think systemically. Ministries, education institutions and teachers can benefit by encouraging, funding and utilising these pedagogies and techniques both inside and outside the classroom.

## 6 Teacher education, training and resourcing

Teachers can be powerful agents of sustainable progress and genuine transformation in society and should be supported with both quality pre-service and in-service professional training to build the necessary knowledge and skills to deliver teaching and learning practices associated with ESD. Teacher education institutions can support this process by building ESD awareness, capacity development, experimentation and the implementation of good practices. Teacher accreditation and certification bodies should continue to develop standards for teacher certification that embed ESD principles. Both national and international peer-to-peer sharing of good practice and the development of innovative ESD resources and their adaptation to local contexts should also be a priority.

## 7 Whole school approaches reinforce system-wide change

The whole school approach offers a particularly promising mechanism for integrating ESD across an entire learning community offering wide ranging improvements to curriculum, campus, institutional culture, student engagement, ecological footprint, learning outcomes and interactions with the wider community. Whole school processes are best served if democracy, participation and inclusion are key principles. As far as possible the campus should be used as a learning environment and a role model for sustainable development in all its forms. ESD 'whole-city' approaches also offer an innovative model of locally-rooted community engagement that is worth replicating.

## 8 School certification schemes to push ambition

Certification or recognition schemes can be another important lever for ESD implementation and can help schools embed ESD practices. They are widely recognised as positively contributing to the sustainability of schools, raising the ambition of their ESD initiatives and empowering students to take action both within the school environment and in the wider community. These schemes should be easy for all stakeholders to follow, achievable within a manageable time frame, have clear allocation of accountability and responsibility, strong mechanisms that embed resilience and create observable and tangible results.



## 9 Local, culturally relevant, 'place-based' learning

Different countries and regions all have their own unique challenges, local contexts, cultures and histories. All this richness and diversity affects the way ESD is perceived, adapted and implemented. Ensuring that these local realities, strengths and resources – including traditional and indigenous knowledge – are a bedrock of ESD policy and practice is central to its ongoing relevance and success. Ministries, education authorities, universities and schools, should continue to orient themselves towards reflecting the broad nature of the societies in which they are embedded. This can be achieved through decentralising a certain portion of the curriculum to locally-based topics and challenges, including elements of local culture, history and knowledge and ensuring marginalised views and minority perspectives are included.

## 10 Monitoring and evaluation of ESD

ESD has a number of features that make evaluating its outcomes, effects and impacts challenging, and to date there has been only patchy and limited use of monitoring tools to assess the quality of ESD programmes, their implementation and impacts. This situation needs to improve in order to ensure that the evidence-base for ESD continues to grow and further improvements can be made to policies, teaching and learning processes and the allocation of resources. A number of questions require further investigation such as the best ways of evaluating interdisciplinary ESD learning outcomes without increasing the testing burden on learners, and what kinds of ESD data and results are most needed to bolster the case for continuing curriculum and pedagogical reform. Where innovation and good case studies do exist for ESD monitoring and evaluation, these should be replicated, scaled up and mainstreamed.

## 11 Financing quality education and ESD

Although it is clear that quality, inclusive and sustainable education is an investment with huge returns, it often suffers from inadequate funding. Efforts to close the funding gap must start with an increase in domestic funding to education. A significant increase in levels of development cooperation and donor funding for education is also needed, particularly to meet the requirements of low and middle-income countries. Multi-stakeholder partnerships and bilateral financing are starting to make a difference and should be supported. Despite challenges to generating targeted funding specifically for ESD there are examples of innovation and good practice that can be followed. These ESD initiatives have the advantage that they can often save – or even generate – significant sums of money in the medium to long term.

## 12 Connecting ESD to 21<sup>st</sup> century skills, jobs and a sustainable economy

To reach its full potential and continue to remain relevant beyond the years of formal education, ESD must forge deeper links with the world of work and the transition to sustainable economies and societies. Through technical and vocational education and training, the development of 21<sup>st</sup> century skills, and social and emotional learning attributes, ESD is increasingly doing this. Its embrace of lifelong learning is also helping to ensure people remain on the right side of change in this era of innovation, automation and disruptive technologies. Half of the global workforce will be affected by the transition to a greener economy. ESD can play an important role in the transition away from unsustainable production and consumption and towards the emerging sustainable economy models of the future.

## ABOUT THIS HANDBOOK

The idea for putting together a handbook on ESD success factors came about as we evaluated the results of an international conference the World Future Council hosted in Annapolis, Maryland in October 2016 that brought together legislators from 16 environment and education ministries from around the world to exchange good practice on ESD. The outcomes of this rich exchange have been distilled and supplemented with research, case studies, field visits, a literature review (particularly of UNESCO's longstanding and extensive work on ESD), and interviews with international ESD experts.

Despite these varied sources this handbook does not claim to be an exhaustive, scientific or academic account of ESD. Equally, it is not realistic or desirable to position it as a blueprint of ESD implementation. Interpretations of social, economic and environmental issues differ greatly across contexts, and one-size-fits-all 'solutions' that try to address this variety often fail to meet their goals. This is also true of ESD and there is certainly no *one* 'right' way to introduce ESD policies, supporting curricula and practices effectively. Policies, practices and priorities are almost always socially and culturally 'nested'. Countries and regions around the world have their own unique challenges and histories which impact the way ESD is perceived and implemented. Integrating local context and knowledge is a key principle of ESD and will remain critically important to its ongoing relevance (as we explore in chapter 9).

But while local policies can vary dramatically in how they contextualise ESD into regional perspectives, there seems to be a remarkable cross-over in some of the central pillars of policy, process and practice that stand out in the majority of countries and contexts where ESD is being effectively embraced. These ESD 'success factors' are worth exploring. They can give us crucial pointers to some of the key ingredients in the effective implementation of sound, quality, sustainable education systems fit for the 21<sup>st</sup> century.



This handbook therefore aims to provide a service to education policy stakeholders (ministry personnel; policymakers, governments and parliamentarians; civil society organisations; principals and teachers; media representatives and the interested public) by providing a solid framework of principles and good practice in ESD. It examines some of the major trends, pioneers and challenges in introducing the 12 success factors in ESD policy, process and practice which we have identified. One of these success factors is investigated in each of the handbook chapters. It also explores a range of case studies from around the world that are showcasing how ESD can be effectively introduced in different contexts (mostly primary and secondary education but also early childhood, vocational education and the private sector, higher education and non-formal education). Finally, it points to where further information on some key ESD issues can be found.

# INTRODUCTION

Given the huge challenges of climate breakdown, inequality, conflict, poverty, hunger, biodiversity loss and unsustainable consumption, individuals and communities across the globe must be equipped to respond positively. Learners must be given the tools that allow them to be part of the solution. They must be empowered to shape their future and live in an increasingly peaceful, just, inclusive and sustainable manner. Education and learning can play an important role in realising this fundamental transition.

Since the launch of the United Nations Decade of Education for Sustainable Development (DESD) in 2005, there has been an emerging acknowledgement and understanding of the role that quality education and ESD can play in this regard. The discussion of quality has moved ESD to the heart of the education reform debates and begun to transform educational policies and learning approaches applied in countries around the world.

Quality education is understood to foster creativity and knowledge, and ensures the acquisition of the foundational skills of literacy and numeracy as well as analytical, problem solving and other high-level cognitive, interpersonal and social skills.<sup>1</sup> The ESD perspective complements and broadens quality education in helping to develop the skills, values and attitudes that enable citizens to understand and respond to local and global sustainability challenges and create more resilient societies.

The varied pedagogical approaches aligned with ESD encourage participatory teaching methods and high-quality learning environments. They put the learner and their needs at the centre. ESD's focus on lifelong learning and relevance to local culture and history provides inclusivity.<sup>2</sup> Just like the problems we face it is multi-disciplinary and is often integrated across the curriculum.

ESD's embrace of action-oriented, hands-on and outdoor learning counteracts the trends of indoor living and lack of contact with the natural world that has real costs for the health and wellbeing of our children and blights many industrialised and urbanised areas. It creates the conditions for an environmentally literate generation of problem solvers with the knowledge, values and understanding to make sustainable development a reality. It achieves its purpose by transforming society.

Increasingly ESD also blurs the distinctions between formal, non-formal and informal education and brings into the process a diverse range of stakeholders from civil society, science, the arts and the world of business. This diversity breeds vital cross-fertilisation and innovation. It is equipping and enabling a transition to low-carbon, greener economies and societies.

It is important to recognise that these processes connected to ESD do not exist in a vacuum. There are many related forms of learning – both old, new and emerging – that are associated with ESD and are similarly rooted in concern for people and planet. Some of these are similar to ESD in their broad scope but often they have a distinct focus or particular geographical or historical relevance. These include environmental education (EE), human rights education, environmental literacy, peace education, climate change (CC) education, disaster risk reduction (DRR) education, learning for sustainability (Lfs), consumer education, and development education (there are many others explored further in chapter 4). All of them can be linked to ESD and when interpreted broadly ESD can be said to encompass these fields. In this way they can all be viewed as a connected attempt to better engage, explore and understand the world.

Ultimately, ESD asks us assume active roles in creating a world we'd be proud to pass on to our grandchildren. It motivates us to be good ancestors.

<sup>1</sup> Incheon Declaration (2015)

<sup>2</sup> Didham, R. and Ofei-Manu (2018)

# 1. POLITICAL WILL: 10 WAYS ESD IS PROVIDING SOLUTIONS TO GLOBAL CHALLENGES

ESD often represents an ambitious, complex and wide-ranging educational reform that poses significant challenges. These challenges are faced by decision makers at the government, ministry, district and school levels and can be strategic, pedagogical or practical in nature.<sup>3</sup> If ESD policy and practice is going to succeed, it is therefore crucial that political will from the national government and support from stakeholders engaged in its implementation are generated and maintained. Thankfully, there are a number of key features and benefits associated with ESD that can be highlighted to build commitment among decision makers and lay the groundwork for embedding that support.

Political will is said to exist when a sufficient set of decision makers with a common understanding of a particular problem are committed to supporting a commonly perceived, potentially effective policy solution.<sup>4</sup> For ESD, one way of breaking down the challenge can therefore be try to answer the following questions: What types of evidence can best generate a common understanding of the need for ESD in policymakers? What processes (local, national and international) can assist the development of this political will around ESD? Once generated, how can this support be cemented and embedded to provide long term assistance and sustainability for ESD? This chapter, and the ones that follow, attempt to answer these questions.

## Showcasing the evidence for ESD

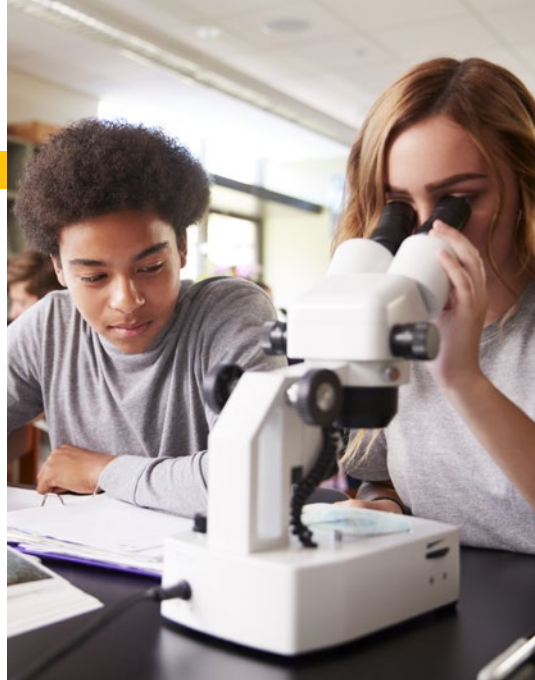
Many governments, NGOs and businesses are increasingly alert to the importance of effective learning and capacity-building for their workforces as they search for solutions to some of the many intractable global challenges we collectively face. This handbook contains much evidence to show that there is a strong trend from countries around the world towards embracing aspects of ESD policy and practice, but that this picture of support – and, crucially, the implementation of ESD – is by no means complete.

One key method of building further support and winning over those yet to be convinced of the benefits of an ESD approach, is to showcase the scientific and academic evidence-base of learning methods and educational outcomes associated with ESD. If that means using language and concepts that policymakers feel comfortable with and can relate to, then so be it. Treasuries need to know that ESD offers government coffers a considerable return on investment that is affordable, scalable and can help solve a multitude of problems. Health Ministries need to know that the outdoor and hands-on pedagogies of ESD lead to better physical health and mental wellbeing. Business chiefs need to know that ESD provides both the desired social and emotional skills and the practical science, technology, engineering and mathematics (STEM) skills vital to the burgeoning low-carbon, sustainable economy.

We need learners who can be challenged and empowered to create solutions at least as radical as the problems we face. The nature of these challenges demands an educational response that enables societies to deal with change, complexity and uncertainty. ESD can play an important role in this. Here are some of the top ten ways ESD is already tackling complex challenges and providing effective solutions.

<sup>3</sup> Stevenson, R. B. (2007)

<sup>4</sup> <https://blogs.worldbank.org/publicsphere/arabvoices/blog-post-month-generating-political-will-and-public-will-positive-social-change>



## 1. ESD makes financial sense

Hard quantitative data on money saved or the return on investment can create immediate political will, particularly in these times of squeezed government budgets and austerity. So, it is particularly good news that schools and other education institutions engaged in sustainable investments and behaviour (for example, reducing their environmental footprint, undertaking energy efficiency measures and installing renewable energy) can also save – or even generate – significant sums of money.

Schools in the United Kingdom taking part in the LESS CO<sub>2</sub> energy efficiency programme save on average 14% on energy costs (£2,600 / €3,000) and reduce their carbon emissions by 17 tonnes in the first year alone.<sup>5</sup> If these results were replicated in the 24,372 schools across England, schools and education budgets would save over £66 million (€76 million) and avoid 414,000 tonnes of carbon a year.

Green schools in the United States use 33% less energy and 32% less water than conventionally constructed schools, significantly reducing utility costs over the average 42-year life cycle of a school. If all U.S. school construction and renovation went green today, the total energy savings alone would be US\$20 billion (€17.7 billion) over the next 10 years.<sup>6</sup>

ESD can provide the practical STEM skills vital to the burgeoning low-carbon, sustainable economy.

## 2. ESD is vital to achieving the SDGs

The Sustainable Development Goals (SDGs) adopted by the global community in 2015 recognise the crucial importance of education in achieving their targets by 2030. Within the UN system ESD has increasingly become a central concept, representing a paradigm shift in how we respond to themes such as green jobs, climate change, water management and resource governance. In 2017, UN General Assembly Resolution 72/222 recognised ESD as “an integral element of the SDG on quality education and a key enabler of all the other SDGs”. While target 4.7 of SDG 4 on education specifically addresses ESD and related approaches, it is clear that the role and impact of education on the whole 2030 Agenda goes much further.

Research by the International Council for Science (ICSU) has shown that education, training and learning need to be properly recognised not only as relevant to all other SDGs, but also as a means by which progress on the other SDGs can be secured. For example, education and training are critical to lifting people out of poverty (SDG goal 1), adopting sustainable farming methods (Goal 2), fostering good health and wellbeing (Goal 3), achieving literacy and improving life chances (Goal 5), and promoting the sustainable use of natural resources and the uptake of renewable energy (Goals 6 & 7). There are similar direct links between education and economic vitality and entrepreneurship (Goal 8), the circular economy and waste prevention (Goal 12), understanding of the impact of climate change (Goal 13), and facilitating participative, inclusive and just societies (Goal 16).<sup>7</sup> Quality education and ESD gives us the essential tools – economic, social, cultural, technological, and even ethical – to take on the SDGs and to achieve them.<sup>8</sup>

<sup>5</sup> <http://www.lessco2.org.uk/councils>

<sup>6</sup> <https://www.usgbc.org/resources/greening-america039s-schools-costs-and-benefits>

<sup>7</sup> See <https://council.science/cms/2017/05/SDG-Report.pdf>, page 29.

<sup>8</sup> See UNESCO (2017)



### 3. ESD is linked to improved learning outcomes

As might be expected given the physical, cognitive and psychological benefits of adopting ESD pedagogies and whole school approaches that include aspects such as outdoor learning and green infrastructure, there are also noticeable improvements in learning outcomes.

A recent study looking at the benefits of green schools in Washington State cited a 15% reduction in absenteeism and a 5% increase in student test scores. Experts at Stanford University identified 119 peer-reviewed studies published over a 20-year period that measured the impacts of using environmental pedagogies, and found very positive impacts on learning, motivation, skill-building, and empowerment. A tremendous 98% of studies that examined whether students gained knowledge from these pedagogies saw a positive impact and 83% reported enhanced environmental behaviour.<sup>9</sup>

In the UK, sustainable school design has been shown to help increase the percentage of pupils gaining five A\* to C grades from a quarter of pupils to between 69% and 94% over five years.<sup>10</sup> Similar studies suggest a 3-5% improvement in learning ability and test scores in schools adopting whole school and green approaches. In well-designed, pupil-friendly environments truancy drops, discipline problems diminish, morale improves, and teaching and learning benefit.<sup>11</sup>

### 4. ESD pedagogies bring huge wellbeing benefits

ESD has embraced and strengthened a whole set of transformative modes of teaching and learning that feature collaboration, learner-centred approaches, systems thinking, applied learning and active participation. These innovative pedagogical approaches and supportive learning environments are increasingly demonstrating that *how* we learn can be just as important as *what* we learn. Studies on the impacts of ESD in 18 countries found that the pedagogies of ESD have had a stronger transformative behavioural and learning impact than the content.<sup>12</sup>

There is mounting empirical evidence related to the active, outdoor learning aspects of ESD that shows that interacting with nature delivers measurable benefits to children, from a physical, cognitive, psychological and spiritual point of view. Studies report an immediate positive response to contact with nature causing a rapid reduction in stress (blood pressure, muscle tension and pulse rate). The behavioural symptoms of children with attention deficit disorder (ADHD) are also reduced when children play in an outdoor natural environment.<sup>13</sup>

There is compelling evidence of the many benefits that outdoor learning and play has for education. These include improvements in the ability to focus, in working with others, in health and wellbeing, in the development of a broad range of social and emotional skills, and ultimately in improved learning outcomes.<sup>14</sup> <sup>15</sup> <sup>16</sup> These diverse benefits become less surprising when we consider that there are now over 100 studies that support the finding that even looking at a natural landscape can help our brains recharge and resume direct attention.<sup>17</sup>

Many of the benefits of these pedagogical approaches are shown to be stronger if begun in early childhood. Governments around the world should heed the evidence and start reaping the benefits of these approaches by investing in early years' and ongoing initiatives rather than focusing on corrective policies for older children.

<sup>9</sup> [https://cdn.naoee.org/sites/default/files/eeworks/files/k-12\\_student\\_key\\_findings.pdf](https://cdn.naoee.org/sites/default/files/eeworks/files/k-12_student_key_findings.pdf)

<sup>10</sup> [https://www.huffingtonpost.co.uk/green-futures/sustainable-schools-project\\_b\\_5750786.html](https://www.huffingtonpost.co.uk/green-futures/sustainable-schools-project_b_5750786.html)

<sup>11</sup> <https://www.usgbc.org/resources/greening-america039s-schools-costs-and-benefits>

<sup>12</sup> Wals, A. E. J. (2012)

<sup>13</sup> [http://ww2.rspb.org.uk/Images/naturalthinking\\_tcm9-161856.pdf](http://ww2.rspb.org.uk/Images/naturalthinking_tcm9-161856.pdf)

<sup>14</sup> See: Keniger, L., Gaston, K., Irvine, K., Fuller, R. (2013)

<sup>15</sup> Bird, W. (2007) Natural Thinking; and RSPB and Wildlife Trust (2014)

<sup>16</sup> Dillon, J., Morris, M., O'Donnell, L., Reid, A., Rickinson, M., Scott, W. (2005).

<sup>17</sup> [http://ww2.rspb.org.uk/Images/naturalthinking\\_tcm9-161856.pdf](http://ww2.rspb.org.uk/Images/naturalthinking_tcm9-161856.pdf)



Quality education and ESD is at the root of societal progress

## 5. ESD demand from learners and teachers

The data shows that there is clear demand for ESD content and pedagogical approaches from both learners and teachers.

A four-year annual Higher Educational Academy and National Union of Students longitudinal study in the UK, incorporating 21,304 university student responses, found that over 80% of students believe that sustainable development should be actively incorporated and promoted by universities, and that over two-thirds believe it should be incorporated into all university courses.<sup>18</sup> As professional bodies increasingly call for sustainability skills in accredited programmes, their infusion into certain areas of the higher education curriculum is growing. These drivers, alongside increasing student awareness and concern about sustainability issues, are motivating teachers and academics to embed sustainability into their lessons and courses.

Similarly, two surveys of teachers across 45 countries in 2017 revealed the desire of many teaching professionals to engage in pedagogical approaches associated with ESD, such as hands-on outdoor learning. Ninety-seven per cent of teachers surveyed worldwide believe that engaging in these approaches throughout the school day is critical for children to reach their full potential.<sup>19</sup>

## 6. Quality education and ESD is at the root of societal progress

Because ESD covers such a broad range of issues it can be relatively straightforward to link it with a multitude of fundamental political priorities, whatever the country or jurisdiction. It is now widely understood that quality education holds the key to a wide range of societal benefits and measures of progress. These include poverty eradication, greater prosperity, improvements to health and nutrition, increased gender equality, agricultural innovation, higher social capital, lower levels of crime and inequality, and an improved natural environment.<sup>20 21 22</sup> No country has ever climbed the human development ladder without steady investment in education.

A green society is an educated society in all its dimensions. Quality education is fundamental to helping people around the world understand why sustainable development must be an integral part of our common future. Indeed, with the global community united through the Paris Agreement in citing climate change as an immediate threat to prosperity and security, ESD should be positioned much higher up the decision-making agenda. It is central to the discussions of what current governments can realistically offer their citizens both now and in the future.<sup>23</sup>

<sup>18</sup> <https://www.heacademy.ac.uk/knowledge-hub/education-sustainable-development-0>

<sup>19</sup> <https://outdoorclassroomday.com/wp-content/uploads/2018/05/FINAL-Project-Dirt-Survey-Outdoor-Play-and-Learning-at-School-2018-15.05.18.pdf>

<sup>20</sup> Bhat S. (2013)

<sup>21</sup> GEM report (2016)

<sup>22</sup> <https://www.equalitytrust.org.uk/social-mobility-and-education>

<sup>23</sup> <http://www.unesco.org/new/en/rio-20/educating-for-a-sustainable-future>



## 7. ESD brings communities together

The ‘whole school’ or ‘whole system’ approach to ESD aims to ensure schools, universities and other learning environments act as role models for sustainable development in all its guises. This approach puts schools at the centre of a vibrant community network that can educate and respond to social, environmental and economic challenges. This includes embedding sustainability in curriculum and learning processes, campus facilities and operations, and becoming responsive to the needs of the surrounding community.<sup>24</sup>

This type of whole school approach has turned a primary school in an arid region of Zimbabwe into an oasis with a rehabilitated forest, fruit trees, nutrition garden and livestock, which has not only improved the local environment but is generating income for the local community of subsistence farmers.<sup>25</sup>

In Japan, the ESD whole system approach has been expanded to encompass an entire city. The locally-rooted Okayama ‘whole-city’ approach involves wide citizen and community engagement across a range of sectors including schools, the government, corporations and civil society associations. Weekly ESD classes in schools start in the 3<sup>rd</sup> grade while 37 community learning centres serve as hubs for ESD learning for the general population where they can engage people in cooking, dancing, local history and projects to improve the local environment.<sup>26</sup>

<sup>24</sup> Buckler and Creech (2014)

<sup>25</sup> <https://en.unesco.org/news/zimbabwean-green-oasis-school-wins-unesco-sustainability-education-prize>

<sup>26</sup> <https://en.unesco.org/prize-esd/2016laureates/okayama>

## 8. ESD provides 21<sup>st</sup> century skills and supports a sustainable economy

There is strong and growing evidence that ESD can be used to bridge the skills-gap with respect to STEM learning, technical and vocational education and training (TVET), educational achievement and ‘21<sup>st</sup> century skills’ such as critical thinking, oral communication, analytical skills, collaboration, digital literacy and problem-solving. It can be a vital force in creating the flexible, innovative, problem-solving workforce that will be able to respond to and solve the emerging challenges of automation, climate breakdown, disaster risk management and sustainable production and consumption. Indeed, the very nature of many sustainability challenges demands solutions and forms of learning that – like the best forms of ESD – are integrative, exploratory, creative and collaborative.

There is strong demand from industry and the private sector around the world for the emerging workforce to have strong social and emotional learning (SEL) skills. New models of learning and capacity building, such as those in the ESD stable, which can lead to more sustainable companies and more capable workforces, are now highly prized. Alongside this, civil society are also calling for populations to have SEL capacities in team work, collaboration flexibility and creative thinking, not least to help overcome the challenges inherent in delivering the SDGs.

As we shall explore later in this handbook, many countries are making an explicit link between ESD and the skills needed to prepare young people for a sustainable economy, for adapting to a changing physical environment, and for changing unsustainable consumption and production patterns.

## 9. ESD aligns with and benefits many other national strategies

Countries around the world are finding that not only can ESD be a guiding principle for all educational policies but that it can also be a vehicle to make progress on other key national strategies.

For example, Guyana's school curriculum was revised to integrate ESD learning in order to be aligned with the Low Carbon Development Strategy (LCDS) built around the sustainable use of its forestry resources. Covered by approximately 85% intact forest, Guyana sees ESD as both a means and an end to the country's sustainable development. Educating learners across the country on ESD principles helps to ensure that unsustainable practices such as illegal logging, inadequate reforestation, illegal mining and overfishing in hinterland regions are corrected.<sup>27</sup>

Costa Rica has enacted a Carbon Neutral 2021 policy, which is outlined in their National Strategy on Climate Change (2009), under which both ESD and climate change education (CCE) are specifically identified as part of a wider programme for capacity building, public awareness raising, education and cultural change. These climate change policies are providing a strong foundation for the implementation of both ESD and CCE in Costa Rica.<sup>28</sup>

Similarly, in Cyprus, ESD has permeated horizontally into many other key national policies, such as the National Strategy for Biodiversity, the National Strategy on Adaptation to Climate Change and the revised National Strategy for Sustainable Development. Not only have these strategies been enhanced and strengthened by the ESD curriculum, but consciousness has been raised and school level actions implemented around climate change and biodiversity at all educational levels.<sup>29</sup>

## 10. ESD can adapt to local cultures and needs

Different countries and regions have their own unique challenges, local contexts, cultures and histories, all of which affect the way ESD is perceived and implemented. Ensuring that these local realities, strengths and resources – including traditional knowledge – are a bedrock of ESD policy and practice is vital if ESD is to be universally relevant and broadly adopted.<sup>30</sup>

One of the five ways that Thailand has embedded ESD practices has been through the introduction of a provision that 30% of subjects across the entire curriculum are made up of decentralised, locally-based topics.<sup>31</sup> In Bhutanese schools, part of the ESD framework centres on mindfulness and compassion while combining values and practices of 'gross national happiness' (GNH). In the Pacific Island of Tonga, ESD principles have been deeply connected with the traditional culture of continuity or *nofo fakapotopoto*, which refers to 'intelligent living'.<sup>32</sup>

In ways like these, schools, universities and other places of learning are increasingly orienting themselves towards the broad nature of the societies and cultures in which they are embedded and focusing on learning around 'real issues' that have genuine meaning and value for the learners and communities they serve.

## CONCLUSION

There is now overwhelming evidence that the adoption of ESD policies, approaches and pedagogies sees benefits that stretch far beyond the classroom. It is linked to a multitude of fundamental political priorities and societal benefits that go to the core of what governments can deliver for both current and future generations and the wider biosphere on which we all depend.

<sup>27</sup> See: <http://education.gov.gy/web/index.php/allied-arts-unit/item/2436-education-for-sustainable-development?showall=&start=1>

<sup>28</sup> UNESCO (2014)

<sup>29</sup> Zachariou, A. (2017)

<sup>30</sup> See para 10 of the Aichi-Nagoya Declaration on ESD

<sup>31</sup> Didham, R. J. & Ofei-Manu, P. (2012)

<sup>32</sup> Thaman, K. H. and Thaman, R. R. (2009)

## 2. ESD POLICY MANDATES AND SUPPORT SYSTEMS

Recent decades have seen substantial, widespread efforts to advance ESD policy. At least 64 countries now include statements related to ESD and the environment in the general aims and goals of their education systems.<sup>33</sup> The setting of ESD policies and frameworks not only provides a broad statement of purpose, but by providing mandates, directives, encouragement and support for ESD implementation, it creates the space needed by stakeholders for action.<sup>34</sup> While the impact on each national context varies, some form of ESD policy mandate is also important for its multiplier effect. When support exists among policymakers and politicians, other key success factors, such as the provision of funding, the creation of institutions and mechanisms to organise and coordinate ESD efforts, and the provision of training for teachers and other key stakeholders at different levels, become more likely.

The enormous diversity of existing ESD-related policies and frameworks underscores the fact that, when it comes to models of ESD, local adaptation is vital. Approaches across differing countries and jurisdictions take myriad forms and address multiple aspects of ESD. These include the introduction of policy mandates and coordinating institutions (chapter 2), curriculum revisions (chapter 4), new pedagogies (chapter 5), and professional development (chapter 6), among others. Countries have also demonstrated successful practices to reorient curricula towards ESD through the adoption of whole system approaches (chapter 7), school certification (chapter 8), and culturally relevant and ‘local’ place-based delivery (chapter 9).

### ESD policy mandates

Of the 68 countries that responded to a 2013 UNESCO survey on their country’s greatest achievements during the UN Decade on ESD (DESD), over a quarter (29%) cited the integration of ESD into national legislation as a highlight.<sup>35</sup> Countries as diverse as Kazakhstan, Morocco, Nicaragua, Sweden, Oman and Italy have all introduced policies or laws whereby ESD, or a closely related pedagogical approach, are compulsory in parts of the curriculum from kindergarten to secondary education.

In accordance with environmental protection or conservation aims in their constitutions, almost all Spanish-speaking countries in Latin America have drawn up environment or ESD related educational goals.<sup>36</sup>

Sustainable development is one of the overarching themes of the Finnish Ministry of Education and Culture’s Child and Youth Policy Programme (2012 – 2015), and within this context active citizenship and global citizenship include not only social and civic activity but also responsible consumer citizenship, protection of human rights, non-discrimination, and environmental responsibility. Similar ESD goals, policies and mandates exist in many parts of Europe, including Cyprus, Moldova, Croatia, Luxembourg, Scotland, Greece and the Czech Republic.<sup>37</sup>

In Togo, the educational policy framework (*Lakalaka*) includes a new, ESD-oriented curriculum entitled Quality Education for a Sustainable Future.

<sup>33</sup> Amadio, M. (2013)

<sup>34</sup> UNESCO (2014)

<sup>35</sup> Buckler, C., & Creech, H. (2014)

<sup>36</sup> Amadio, M. (2013)

<sup>37</sup> *ibid.*



In China, the Ministry of Education introduced its first guiding policy on ESD in 2003 and went on to strengthen its educational guidelines to correspond with new mandates contained in the 2008 'Circular Economy Promotion Law of the People's Republic of China'. In accordance with this development law, 'Environmental Education Guidelines' and a new syllabus were developed and introduced for primary and middle school. Similar ESD mandates exist for other relevant sectors, including the national curriculum, primary, secondary, higher and non-formal education, civil society and community participation.<sup>38</sup>

In the U.S., where education policy is largely the responsibility of local and state government, a number of states have introduced environmental literacy legislation. Maryland became the first to make environmental literacy a mandatory high-school graduation requirement in 2011.<sup>39</sup>

### National ESD strategies

Nineteen countries cited the development of an ESD strategy for their countries as their greatest achievement UN decade on ESD.<sup>40</sup> These strategies often represent another successful approach for the reform of existing curricula and the introduction of innovative approaches to teaching and learning.

For example, the National ESD Strategy of Luxembourg, released in December 2011, initiated the integration of ESD in formal and non-formal education, teacher training as well as out-of-school activities. The Strategy also kicked off the adoption of a competency-based approach for both ESD and the reform of school curricula, marking a shift towards creative thinking, informed and ethical decision-making, responsible behaviour, collaboration and cooperative skills, systemic thinking, self-confidence and empathy.

## ESD IN KENYA: from policy to practice

Kenya is currently reforming its education system towards a more flexible competence-based curriculum with a stronger focus on '21<sup>st</sup> century skills' (such as communication, collaboration, critical thinking, problem solving, citizenship and digital literacy) and less on content. As part of these efforts, a national ESD Policy Framework was adopted in 2012 with the goal of enhancing sustainable development through transformative curriculum developments. ESD has also been embedded in the National Education Sector Programme (NESP) to be implemented over five years (2013–2018), and is central in Vision 2030, Kenya's roadmap to the realisation of sustainable development.<sup>41</sup> These policy aims are finding their way into the school system through a range of initiatives.

The Ministry of Education has developed a programme to implement STEM education and ESD in over 108 STEM model schools in 47 counties in Kenya and is establishing ESD projects such as greening school campuses, water management, food security (growing crops and vegetables) and soil conservation. ESD focal points from the 47 counties have been appointed and undertaken capacity building together with education officials at national level. Despite scarce resources, ESD teacher training, as well as work with head teachers, ensures coordination and support for the ESD activities.

<sup>38</sup> See Didham, R. J., & Ofei-Manu, P. [2012].

<sup>39</sup> See: <https://www.futurepolicy.org/curricula-reform/marylands-els/>

<sup>40</sup> Results from ESD UNESCO Questionnaire 1: Input from online survey for Member States, Stakeholders and UN Agencies; (Background paper for the DESD Global Monitoring Report 2014). Paris.

<sup>41</sup> UNESCO (2017)

Similarly, in 2017 Germany's steering body, the National Platform on ESD, adopted the National Action Plan for Global Action Programme (GAP) implementation. It defines 130 objectives and 349 measures to scale up ESD in all areas and at all levels of the German education system.<sup>42</sup>

### Giving policies 'legs': operationalising ESD

Whether countries are using 'hard' laws and mandates or more 'soft' policy instruments that engage, encourage and inform, policies need to be given 'legs' to effectively move from paper to practice. If reforms are going to be felt on a day-to-day basis at the level of individual learners, then school-level programmes, ESD capacity building, targeted funding, and a system of continuous monitoring and improvement need to follow policy mandates.

In the case of Finland, all schools were required to draw up a sustainable development (SD) plan by the end of 2010. This plan was required to contain a number of key elements: how implementation of ESD was being achieved, an account of how the school will change its operations and everyday activities so that they correspond to the targets set in the plan, and an indication of who is responsible for the implementation.<sup>43</sup>

The province of Manitoba in Canada responded to a strong policy commitment on ESD by integrating it 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 dedicating funding to ensure the development of sustainability practices, principles, programmes and partnerships, helps schools to embed sustainability into their classrooms, operations and management.<sup>44</sup>

In Viet Nam, UNESCO's Global Action Programme (GAP) has been helping to put ESD policy into practice in a number of ways, from reinforcing the ESD capacities of policymakers to supporting the development of a National Framework for Environmental ESD and integrating ESD into new curriculum textbooks. This work is also helping to define the knowledge, skills and attitudes towards sustainable development topics that are necessary and relevant for students from pre-school to upper secondary.<sup>45</sup>

## MAURITIUS: Integration, cooperation and ESD leadership

Mauritius has undertaken ambitious leadership through its 2008 'Maurice Ile Durable' policy that aims to make Mauritius a world model of sustainable development by 2020, particularly in the context of SIDS (Small Island Developing States). While the initial motivation was to minimise dependency on fossil fuels through increased utilisation of renewable energy, the concept soon widened to include all aspects of the economic model, society and the environment considered pivotal in the quest for a sustainable Mauritius. Education is one of the policy's 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 and organisations. 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.<sup>46</sup>

<sup>42</sup> <https://www.bne-portal.de/en/education-sustainable-development-germany/german-national-action-plan-esd-adopted>

<sup>43</sup> Wals, A. E. J. (2012)

<sup>44</sup> Buckler, C., & Creech, H. (2014)

<sup>45</sup> <http://unesdoc.unesco.org/images/0024/002462/246270e.pdf>

<sup>46</sup> <http://mid.govmu.org/portal/sites/mid/WG5Edu.htm>



### Coordination is key: national ESD bodies and focal points

ESD policy implementation poses a variety of governance challenges. These include improving communication and coordination among governmental ministries and knowing how to best support schools in rolling out ESD reforms and providing professional development. One persistent challenge is that responsibility for ESD often falls under different ministries (e.g. education, health, environment, development, maritime, etc.) and a lack of proper coordination amongst key stakeholders is a recurring stumbling block.<sup>47</sup>

While countries like Belgium have found that what really worked was the slow, bottom-up work of building trust and collaboration through jointly realising the concrete initiatives of different ministries, there are also some tried and tested legal and institutional mechanisms that have proved effective. The creation of national coordinating bodies, inter-departmental committees and national focal points on ESD have often made a significant positive impact. At the end of the DESD, 80% of countries reported having an ESD focal point and 50% of countries had established a national coordination body.<sup>48</sup> Such entities can act as a vital bridge by acting across ministries and as a focal point for other key ESD stakeholders, filling the gap between policy and current practice.

<sup>47</sup> Buckler, C., & Creech, H. (2014)

<sup>48</sup> Ibid.

Cyprus has embedded ESD into the national strategies for biodiversity and climate change resulting in school-level actions on these topics

### CASE STUDY

## Cyprus' permanent Education Unit for ESD

Cyprus kick-started its national incorporation of ESD policies during its accession to the EU in 2004, but in recent years has become recognised as an example of ESD good practice. The Ministry of Education has used ESD as a catalyst for an extensive education reform process with an ESD curriculum introduced at all levels in 2010. The National Strategic Action Plan for ESD mandates a sustainable whole school approach at each learning institution. It also provides for extensive teacher professional development on ESD and promotes action and intervention both locally and nationally through strong cooperation with a range of active partners.<sup>49</sup>

One of the features that allows Cyprus to coordinate its ESD action plan across ministries and effectively integrate it into its national strategies on biodiversity, climate change and SDGs, is the introduction of strong supportive institutions. A permanent Education Unit for ESD operates from the Ministry of Education and Culture with a mission to embed sustainable development into all levels of formal, non-formal and informal education. Composed of 19 experienced teachers and educational specialists on ESD, the Unit works with local communities, universities, NGOs and professional groups. The expertise and coordination of the Unit has helped Cyprus implement a holistic, long-term and systemic ESD strategy across the country.<sup>50</sup>

<sup>49</sup> Zachariou, A. (2017)

<sup>50</sup> Interview with Aravelia Zachariou, Head of Cyprus ESD Unit

Germany's federal structure means that responsibility for the education system lies primarily with the 16 states (*Länder*), with the federal government playing a more limited role. The Standing Conference of Ministers of Education (*Kultusministerkonferenz*) serves to coordinate educational practices at the national level. At the state level the body that leads ESD implementation is primarily the ministry of environment (with the ministry of education taking the lead in five states). The state of Hessen has demonstrated institutional innovation with both ministries agreeing to establish a state coordinator for ESD, sharing costs and resources. A network of 11 ESD centres has been also been introduced to support schools in the state to integrate ESD in their daily work.<sup>51</sup>



*“The genuine involvement and commitment of the government is crucial. ESD is not an add-on – it is a core success factor for achieving the SDGs as most of them are not technical solutions, but rather require the development of people’s sustainable development skills and competencies.”*

**Reiner Mathar**

Former ESD coordinator in the state of Hessen, Germany; German representative at UNECE of the Standing Conference of Ministers of Education in Germany; Member of the National Round Table for the UN DESD in Germany

## Embedding ESD resilience

Whatever ESD mechanisms and frameworks are used at different levels of governance, once they are in place they need be consolidated. Strong mechanisms that spread accountability, responsibility and competencies as widely as possible are vital. This is as true at the ministry level as at the local education authority and school level. A useful rule of thumb to embed resilience suggested by ESD practitioners is to ensure that at least three key members of a team are accountable and fully committed to driving an ESD strategy forward. In this way, the inevitable changes in personnel that happen don't derail the implementation of ESD. Succession plans are helpful for the same reason.<sup>52</sup>

Precisely this type of resilience embedding is currently being introduced in 20 countries from Botswana to Kazakhstan and Cambodia by one of UNESCO's GAP Flagship projects: 'Sustainability starts with teachers'. Using the 'change project' method, the project is introducing lasting change in the policy, strategy, curriculum, learning programmes, learning environments and community relationships of teacher education institutions. After an initial training of a small group of core staff, including the dean/head and teacher educators, each institution introduces collaboratively developed and implemented changes leading to ESD learning and resilience across the institution.<sup>53</sup>

Such institution-wide approaches to promoting cultural shifts can be necessary when dealing with educational institutions that are quite resistant to change and are seen as barriers to moving towards sustainable development. Researchers like Moacir Gadotti point out that some institutions tend to reinforce the principles and values of an unsustainable lifestyle and economy and that without social mobilisation against the current economic model, ESD will not reach its goals.<sup>54</sup>

These resilience approaches can also be necessary to consider when faced with a change of government that can spell a reversal or regression of sustainability commitments, strategies and progress (as has arguably happened in English education policy over the past decade).

<sup>51</sup> <https://www.hessen-nachhaltig.de/de/aktuelles/mit-schwung-ins-neue-schuljahr-hessische-bildungsinitiative-nachhaltigkeit-geht-in-die-verlaengerung.html>

<sup>52</sup> Conclusion of international ESD practitioners, WFC ESD workshop, Maryland.

<sup>53</sup> <http://unesdoc.unesco.org/images/0024/002462/246270e.pdf>

<sup>54</sup> Gadotti, M. (2008)

## Regional frameworks

Regional entities, mechanisms and strategies that serve as vehicles for sharing good practice, providing technical advice, national capacity development and pushing ambition are also proving very effective in bolstering and spreading ESD best practice.

Regional frameworks such as the Strategy of Education for Sustainable Development for Sub-Saharan Africa (launched in 2006) and the Mediterranean Strategy on ESD (endorsed in 2014) have supported knowledge and expertise sharing, common monitoring and reporting, and stronger political incentives around the world.<sup>55</sup>

## CONCLUSION: POLICY IS NECESSARY BUT NOT A PANACEA

It is clear that without the necessary policy commitments, training and tools, the success of ESD programmes too often become dependent on the enthusiasm of particular teachers or the personal support of a school head or principal. While it is heartening to see that some schools still find it possible to engage in strong ESD activities in countries with only scant ESD-specific policies, for ESD to truly flourish there needs to be a solid support system in place including policy mechanisms. For example, countries such as Uruguay and Bolivia have cited a lack of a national policy related to ESD/EE as being a significant barrier to reorienting their education systems.<sup>56</sup>

However, while ESD policy is often a *necessary* factor for success, on its own it is certainly not a *sufficient* one to achieve strong practice, especially when viewed as a means for wider education reform. The challenges ESD highlights cannot be solved through technological advances, legislative measures and new policy frameworks

alone. While such responses are necessary, they need to be accompanied by changes in mind-sets, values and lifestyles, as well as a strengthening of people's capacities to bring about change. The real work comes when transforming policy into the everyday experience of each learner. If a jurisdiction fails to support policy mandates with an effective coordinating body, ESD-focused teacher training or curriculum developments, there are inevitably going to be considerable gaps in implementation and success.

Early in the Decade on ESD, some countries responded to mandates for ESD in their National Plans for Sustainable Development by incorporating it mainly as an add-on subject in limited areas of the curriculum while providing few support measures to ensure its implementation. Education systems can be very slow to respond to change and understandably these limited interventions often failed to have a transformative effect.<sup>57</sup> More recently, countries have started to appreciate the broader reform potential of ESD across the entire education system and have moved to integrate ESD across the curriculum and support policy initiatives with the necessary institutions, resources and capacities to see them succeed.



## FURTHER READING

- Education for Sustainable Development Lens: A Policy and Practice Review Tool: <http://unesdoc.unesco.org/images/0019/001908/190898e.pdf>
- Didham, R. J., and Ofei-Manu, P. (2018) Advancing policy to achieve quality Education for Sustainable Development, in: <http://unesdoc.unesco.org/images/0026/002614/261445e.pdf>

<sup>55</sup> Buckler, C., & Creech, H. (2014)

<sup>56</sup> Ibid.

<sup>57</sup> Didham, R. & Ofei-Manu (2018)



### 3. MULTI-STAKEHOLDER COLLABORATIVE PARTNERSHIPS ON ESD

It has become abundantly clear that global efforts towards sustainability cannot be limited to any one sphere operating in isolation, be they classrooms, homes, corporate boardrooms, universities, local environmental education centres, civil society or governmental authorities. Education for sustainable development is similarly a multi-stakeholder endeavour. To be effective and representative – to ‘walk its talk’ – ESD must be created through a process of public participation in which stakeholders from across the community can express their visions of what a sustainable society – and an education system oriented to support it – should look like. Learning for sustainability, therefore, requires a blending of formal, non-formal and informal education and meaningful input from multiple societal actors with increased permeability among units, disciplines, generations, cultures, institutions and sectors.<sup>58</sup>

Throughout human history people have worked together to find solutions to challenges facing their communities. While many of these participatory traditions were lost as societies became more complex and decision making became centred in seats of government, there has been a resurgence in more inclusive decision-making processes in recent decades. Such processes are inherent to sustainability and are designed to involve the public or their representatives in inclusive and democratic decision making.<sup>59</sup>

The resulting ‘boundary-crossing’ opens up new possibilities for hybrid learning and cultivates ownership with respect to both the learning process and the solutions that are found. New partnerships and coalitions can form. Case studies from around the world show these can become a source of great creativity, innovation and impact in ESD.

#### The need for coalition building

While the fundamental responsibility for successfully implementing education policy lies with governments, the challenges of learning about and responding to sustainability-related topics increasingly demands a community response. This is true for many reasons. Progress that is both effective and long-lasting in a complex policy area such as education reform typically only happens if those in charge of education policy and a broad coalition of key public stakeholders are pushing in the same direction. Developing a coherent and successful ESD policy that has the breadth and depth of support to ensure it is not dropped, impeded or side-lined by a future administration or bureaucratic inertia requires collective coordination and commitment.

#### Partnerships impact all stages of the ESD policy cycle

Partnerships can be instrumental in all stages of the policy cycle. They can help to build political will, assist the drafting of legislation or a policy mandate that represents diverse stakeholder views, and support an institutional framework for delivery and partnering in the implementation and monitoring of progress.

Studies into national ESD strategies confirm the importance of processes which enable multi-stakeholder and intercultural dialogue in making them a success.<sup>60</sup> In many cases, multi-stakeholder dialogue underpinned the processes of developing the national frameworks as well as being embodied in their content.

For example, Rwanda embraced a multi-stakeholder consultative approach in the development of its national Environmental ESD Strategy (2010 – 2015) in order to

<sup>58</sup> Wals, A. E. J. (2012)

<sup>59</sup> <http://www.esdtoolkit.org/discussion/participation.htm>

<sup>60</sup> Tilbury and Mula (2009)

## CASE STUDY

### Maryland: a community response to building environmental literacy

In 2011, Maryland became the first U.S. state to make environmental literacy a mandatory high-school graduation requirement with the introduction of Environmental Literacy (E-Lit) Standards. Each of Maryland's 24 local education authorities (LEA) must now provide a holistic programme of environmental education content and activities taught from kindergarten to high-school and integrated across a wide range of subjects throughout the curriculum.

One of the key success factors in this reform was the early and regular engagement and collaboration of all the key stakeholders. Three years before the introduction of the mandate, a diverse coalition of actors, from parents' groups to federal agencies to local education departments and environmental NGOs, formed the 'Maryland Partnership for Children in Nature'. The Partnership was charged with developing and implementing an environmental literacy plan to provide learners with structured and unstructured opportunities for play, outdoor recreation, the delivery of a local action project, environmental learning and scientific study.

Crucially, these stakeholders continue to actively assist with the delivery, funding, and strategy of Maryland's E-Lit regulation, developing an annual work plan, implementing actions and reporting on progress.<sup>63</sup>

engage relevant stakeholders, draft objectives that could be adopted by everyone, and ensure an inclusive and high level national participation in the implementation of the strategy.<sup>61</sup> Costa Rica's development of a national ESD policy was similarly based on a broad consultation with more than 500 diverse stakeholders who went on to play a key role in delivering the plan.<sup>62</sup>

### ESD delivery: Blurring the lines of where education 'should' happen

The term 'education' is often associated with what happens in school or university classrooms at the hands of professional teaching staff. However, education and learning in ESD is increasingly taking place in a wide variety of social contexts and locations. A number of national ESD policies (e.g. Scottish, Dutch, etc.) have adopted the terminology of 'Learning for Sustainability' to emphasise that learning is not limited to 'education' in schools.

The boundaries between schools, universities, communities, field study and environmental education centres, museums, national parks, and the private sector are blurring as a result of several recent trends. These include the call for lifelong learning, the subject expertise of many civil society actors and NGOs, the new possibilities offered by information and communications technology (ICT) for remote, social and networking education, the increasing adoption of hands-on experiential learning pedagogies, and the private sector's growing interest in human resources development.

The resulting 'boundary crossing' is reconfiguring how schools, universities and other places of learning interact with their community, changing stakeholder roles and public-private relationships. This new dynamic provides a source of energy and creativity in education, teaching and learning, which itself provides a powerful entry point for ESD.<sup>64</sup>

61 Buckler, C., & Creech, H. (2014)

62 <http://unesdoc.unesco.org/images/0024/002462/246270e.pdf>

63 <http://www.dsd.state.md.us/comar/comarhtml/01/01.01.2008.10.htm>

64 Wals, A. E. J. (2012)



A community learning centre in the Philippines

## Non-formal and informal learning

Non-formal and informal learning refer to the collective learning that takes place outside formal educational systems. *Informal learning* can be understood to be an inescapable part of daily life arising from a person's involvement in activities that don't have a particular learning purpose in mind. *Non-formal learning* on the other hand has some kind of organisational framework and is commonly initiated, led or organised (even if only loosely) by community groups, CSOs, churches, NGOs and networks that seek to engage citizens (young and old) in learning activities.

Non-formal learning may be led by a qualified teacher but is often directed by any suitable leader with relevant experience. Though it doesn't result in a formal degree or diploma, this type of education tends to be highly enriching and builds an individual's skills and capacities. It is also often considered more engaging, as the learner's interest is a driving force behind their participation. Examples include the Guides and Scouts movements, school involvement in community vegetable gardens, and IT education courses for adults.<sup>65</sup>

It is worth noting that just as the *'where'* of education is blurring, so is the *'who'*. The distinctions between formal, non-formal and informal are increasingly linked and simultaneous. For example, in Luxembourg, all outdoor ESD lessons are now delivered by NGOs. Similarly, in Italy, most educational projects on sustainable development are carried out as non-formal education at the local level in collaboration with NGOs, regional or local institutions, parks, universities, regional environmental agencies, and other local actors.<sup>66</sup>

In the Bahamas, ESD is being included in the curricula of many schools largely through the efforts of NGOs who run education programmes, field trips and summer camps. The number of NGOs participating in ESD in Egypt has been rising rapidly and ESD is becoming part of non-formal education through community learning centres.<sup>67</sup> In the UK, the electricity and gas utility company National Grid runs educational activities in schools to encourage young people of all levels and backgrounds to pursue science, engineering, maths and technology careers.<sup>68</sup>

In Chile, CSOs have used diverse approaches to integrate ESD into their non-formal educational programmes. Some strategies emphasised linking with companies to harmonise and integrate ESD initiatives with the market economy, while others focused on local citizen participation, community empowerment and strengthening territorial identity.<sup>69</sup>

## Environmental education centres

A relatively widespread and more structured way that non-formal education is supporting ESD in schools is through environmental education centres. Local municipalities, museums, national park systems and other organisations are increasingly offering hands-on learning opportunities, wilderness experiences or lessons with a sustainability component to enrich or expand on a school's core activities.

<sup>65</sup> <https://dsaraheaton.wordpress.com/>

<sup>66</sup> Wals, A. E. J. (2012)

<sup>67</sup> ESD regional synthesis report, Arab Region

<sup>68</sup> <https://www.nationalgrid.com/group/about-us/what-we-do>

<sup>69</sup> Wals, A. E. J. (2012)



The blending of formal, non-formal and informal education in ESD – with input from multiple stakeholders – is a great source of creativity, innovation and impact.

For example, in Uzbekistan ESD courses about climate change and ecology are organised for pupils across the school system in 211 youth centres.<sup>70</sup>

In Cyprus, a network of environmental education centres support the work done in schools, acting as a tool for exploring the island's unique biodiversity, outdoor exploration of the curriculum and to support local communities. It also provides students with the opportunity to gain first-hand experiences working in local trades and investigating sustainable consumption and production.<sup>71</sup>

One of the immediate effects of Maryland's Environmental Literacy regulation was the strengthened cooperation between outdoor education providers and schools to ensure that every child has regular meaningful experiences in nature. Where possible, teaching is done out of doors, in the form of natural history field trips, community service projects, experiential lessons in the local environment and participation in outdoor science classes. Each of Maryland's 24 local education authorities now has access to outdoor education centres.<sup>72</sup>

### Strength in diversity

ESD can operate well at the interface of places of learning, communities, CSOs and the private sector. Many of these stakeholders see formal education institutions as natural partners, resulting in 'blended' forms of learning that are dynamic and cross-boundary in nature. This can lead to stronger bonds and greater cohesion between the school and the community. Civil society organisations can contribute to innovation in ESD by having the flexibility to take risks, undertake research and experiment in ways that others cannot. Where local community perspectives are incorporated, intergenerational exchange encouraged, and participation and democratic involvement mainstreamed, transformative modes of ESD are likely to emerge.

Even in countries where the formal space allotted to participation and democracy is limited, CSOs, businesses and social networks are creating spaces outside the formal system to address sustainability issues. This support can work both ways. Community ownership of ESD can be aided by empowering populations from the grass-roots level, by reaching out and fully including marginalised groups and paying special attention to women and girls.<sup>73</sup> The inclusive, diverse, bottom-up approaches that emerge from these rich interactions can encourage governments to learn, upscale and innovate at the national level.<sup>74</sup>

<sup>70</sup> Buckler, C., & Creech, H. (2014)

<sup>71</sup> Zachariou, A. (2017)

<sup>72</sup> <https://www.futurepolicy.org/curricula-reform/marylands-els/>

<sup>73</sup> <http://www.rightto-education.org/marginalised-groups>

<sup>74</sup> UNESCO (2013)

## Why ESD partnerships matter

- ✔ Creating partnerships for change strengthens ownership of a problem and a commitment to sustainability amongst diverse stakeholders. It cultivates 'ownership' with respect to both the learning process and the solutions that are found.
- ✔ Workloads are shared across the community, which means a greater problem-solving capacity, skills base and set of perspectives is accessed.
- ✔ Accountability and transparency are promoted.
- ✔ The right to participation of all stakeholders (including marginalised groups) is upheld.
- ✔ It promotes learning how to work together to build a shared vision of the future by combining knowledge, technology and resources.
- ✔ It recognises that one of the best ways to understand different world views is to collaborate with people from different fields of work, cultures and backgrounds.

### Hybrid multi-stakeholder groups

There are many diverse examples of hybrid multiple stakeholder groups and institutions, often working at the local level in countries around the world. Some are connected to schools and universities, others to CSOs or the business community. They range from inclusive refugee-centres for women's empowerment through arts and cultural activities in Costa Rica, to NGOs working with schools on sustainable agriculture, entrepreneurship and democracy in Cameroon, and national technical and vocational education and training (TVET) centres in South Africa.<sup>75 76</sup>

The Transition Town movement that started in the UK and has now spread to over 50 countries, in thousands of groups in towns, villages, cities, universities and schools, is a vibrant example. The movement brings together communities to crowd-source solutions that address the big climate and social challenges they face by working locally, reclaiming the economy, driving environmental action, sparking entrepreneurship, reimagining work and re-skilling.<sup>77</sup>

### Regional Centres of Expertise

The rapid rise of Regional Centres of Expertise (RCEs) in which universities are partners in a network of NGOs, CSOs, community groups, businesses, schools and others can be deemed a testimony to the huge potential of multi-stakeholder cooperation and learning on ESD. Over 165 of these regional hubs have been established worldwide as of August 2018. Acting as networks of existing formal, non-formal and informal education organisations, they encourage the development and strengthening of ESD practice to local and regional communities. They have undoubtedly improved communication and dialogue in addressing regional expertise and the communication of good practice on ESD.

Since 2011, the African RCE network has been meeting annually and has recently undertaken work to empower youth on the continent and scale up the ambition, innovation and resources that African ministries are committing to deliver the SDGs.<sup>78</sup> RCEs from across Europe and have also been credited with using their local knowledge to help transform schools using the whole-institution approach, build capacities of educators and trainers, empower and mobilise youth, and accelerate ESD implementation at the local level.<sup>79</sup>

<sup>75</sup> <http://www.ccreadcameroon.org/>

<sup>76</sup> <https://en.unesco.org/news/lookfuture-education-sustainable-development-costa-rica-event>

<sup>77</sup> <https://transitionnetwork.org/>

<sup>78</sup> <https://www.rcenetwork.org/portal/node/2787>

<sup>79</sup> <http://www.rcenetwork.org/portal/rce-vision-and-mission>



## Celebrating ESD 'day' or 'week'

Another way that learning communities are engaging dynamically with many non-formal stakeholders is through national or international days (and sometimes weeks) celebrating ESD, sustainability, environmental education or outdoor learning.

For example, in Italy every year hundreds of schools participate in 'ESD Week' with a wide range of activities such as seminars, lessons, laboratories, role playing games and exhibitions. These activities involve a significant number of actors (local administrations, NGOs, local employers, regional environmental agencies, parks, etc.) that are engaged in educational and cultural activities that focus on sustainability.<sup>80</sup>

Switzerland's 'Sustainability Week' is run by students from several universities with a bottom-up approach that focuses on enhancing sustainability at higher education institutions.<sup>81</sup>

The Peruvian Ministry of Education has initiated an annual 'Environmental Education Week' and 'Outdoor Education Day' as part of a programme to integrate ESD within its school system. These initiatives are aimed at giving teachers the opportunity and experience of using the outdoors as a learning tool with special teaching resources and a website developed to inspire.

Similar projects and events that engage diverse stakeholders to inspire and celebrate outdoor learning and play have gathered increasing momentum. 'Outdoor Classroom Day' has grown to engage with over 4 million children annually in over 100 countries worldwide from Alaska to Tasmania, Patagonia to Sulawesi. This engagement has also led to longer term changes in school culture. Over 70% of the 40,000 schools which have taken part in Outdoor Classroom Day report that they have increased the frequency of outdoor learning as a result.<sup>82</sup>

## Media as a partner in ESD outreach

The media – in all its various print, online, radio and social formats – provides both a challenge and an opportunity for ESD.

On the one hand, in a consumer society media advertising is a powerful tool promoting the kinds of unsustainable lifestyles and consumption patterns that are key drivers of many of our global crises. One of the key functions of education must be to develop the critical thinking abilities of learners. Critical media literacy is increasingly important to help citizens distinguish between fake and genuine attempts to contribute to sustainability and choose which sources to use and trust from the plethora of often contradictory information available on the internet.<sup>83</sup>

On the other hand, the media can be a powerful tool for positive change, as witnessed by the astonishing impacts on both personal behaviour change and policy achievements regarding single use plastics brought about by the BBC's 'Blue Planet' series.<sup>84</sup> Clearly media can play a huge role in ESD advocacy and delivery by giving relevant topics and stories coverage. UNESCO and other educational organisations – recognising that that vital role – are creating ESD training manuals and workshops for the media.<sup>85</sup>

Given that a large share of the world's population now has access to the internet and social media through mobile phones, there is a huge opportunity to reach far wider audiences for ESD through increased use of social media channels and online platforms.

## MOOCS on ESD

In order to maximise the outreach of ESD initiatives, some educational institutions have begun using ICT resources to create large knowledge networks at very low cost. A key recent trend in education technology are 'massive open online courses' (MOOCs) which can offer professional development for teachers, policymakers and other education stakeholders to enhance their knowledge and understanding and reorient teacher education towards sustainability.<sup>86</sup>

<sup>80</sup> Italian National Commission for UNESCO, Italy

<sup>81</sup> SWEDESD (2016)

<sup>82</sup> <https://outdoorclassroomday.org.uk>

<sup>83</sup> KIS, Belgium in Wals, A. E. J. (2012)

<sup>84</sup> <https://canvas-story.bbcnews.com/uk/blue-planet-two-six-months-on/>

<sup>85</sup> For example, see UNESCO's 'Media as partners in education for sustainable development: a training and resource kit'

<sup>86</sup> Leicht, A. et al. (2018)

The Moray House School of Education at the University of Edinburgh, Scotland, developed free MOOCs on Learning for Sustainability which ran in 2015 and 2018. These contained topics such as 'Developing a personal ethic' and 'Engaging in communicating' and had upwards of 13,000 participants from 170 countries each.<sup>87</sup>

James Cook University in Australia offers an interactive ESD MOOC course called 'Foundations in Sustainability in Education (FSE)' offering hands-on science experiments and real-world data collection weekly tutorials that provide opportunities for experiential learning and modelling of classroom pedagogies for science and sustainability education.<sup>88</sup>

### Public awareness on ESD

By the end of the Decade on ESD nearly three-quarters of Member States (72%) reported that good progress had been made on public awareness raising efforts on environment and sustainable development issues. While this work by different departments and levels of government is important and necessary, it is greatly assisted by the awareness raising effort of community-based organisations, NGOs, social enterprises, green businesses and other bodies.<sup>89</sup>

Global ethical frameworks like the Earth Charter for building a just, sustainable, and peaceful 21<sup>st</sup> century society, and global events such as Earth Day, Oceans Day and the Earth Hour have considerable public buy-in and awareness raising impacts.<sup>90</sup> Hundreds of millions of people across the world took part in Earth Hour 2018, which has been billed as the world's largest event to protect the planet.<sup>91</sup>

## CONCLUSION

The diverse partnerships blending formal, non-formal and informal education with input from multiple actors across communities, civil society and the private sector provide a source of energy, creativity and innovation to ESD. These partnerships and the public outreach events, MOOCs and media partnerships on sustainable development issues that they generate, should expand and continue. They have the power to inform and equip citizens with the capacities needed to transform themselves and others and understand our collective relationship to the wellbeing of the living planet. They can help citizens deal with the complexity, controversy and uncertainty of modern living, and guide us toward choosing environmentally and socially responsible energy, housing and lifestyle goods and services.<sup>92</sup>

If it is to continue to gain public support, ESD must make every effort to be openly accessible and useful to all members of society. Greater participation in ESD events, courses, lifelong learning opportunities or learning through open-source internet platforms can help with both capacity building and broader buy-in from the public.<sup>93</sup>



### FURTHER READING:

- M. Espinet, A. Zachariou, *Keystones on School Community Collaboration for Sustainable Development*, ENSI <https://ensi.org/global/downloads/Publications/369/CoDeS-Key%20Stones.pdf>
- UNESCO: *Media as partners in education for sustainable development: a training and resource kit*: <http://unesdoc.unesco.org/images/0015/001587/158787E.pdf>

87 SWEDES (2016)

88 Leicht, A. et al. (2018)

89 Buckler, C., & Creech, H. (2014)

90 <http://earthcharter.org/discover/>

91 <https://www.wwf.org.uk/updates/earth-hour-2018-worlds-largest-event-protect-planet>

92 Buckler, C., & Creech, H. (2014)

93 Wals, A. E. J. (2012)

## 4. ESD CURRICULUM REVISIONS AND INTEGRATION PRACTICES

While educational systems around the world differ in numerous ways, the national curriculum often serves as the most significant piece of educational policy available to secure the implementation of ESD. Depending on the approach taken, the adoption of ESD policies and practices can imply a fundamental revision of curricula, based on meaningful subjects, hands-on approaches, participation, democracy and interdisciplinary proficiency. One of the core questions facing education practitioners and policymakers looking to integrate ESD has therefore been what strategy to adopt: ‘add on’, ‘whole system redesign’, or something of a hybrid of the two. Whereas the former seeks to widen the space within existing national curricula for ESD, the whole system redesign challenges the entire system more fundamentally by reorienting the structure, content, learning processes and school organisation.

There are different benefits and challenges to these approaches and the choice has often been determined by a country’s tradition of governance, socioeconomic system and history of ESD integration. It is also closely related to how versatile an education system is in allowing teachers or schools flexibility in deviating from standardised national curricula or prescribed teaching content. Where

there is space for a degree of self-determination and participation from learners and the wider community, the likelihood of systemic innovation and cross-boundary learning in education is obviously far greater. Where these opportunities are restricted, developing quality ESD educational material that can be linked to existing curricula will remain necessary.<sup>94</sup>

What is becoming ever clearer is that, to reach its fullest, potential ESD must outgrow its treatment as a just another thematic topic among many and work proactively as a holistic and system-wide approach.

### Global trends in basic educational structure, content and process

ESD has benefited from, supported and developed alongside many fundamental changes in how education is conceptualised and delivered around the world. It is also clear that ESD has become a significant contributor in promoting this evolution in teaching and learning processes across educational settings.

<sup>94</sup> Wals, A. E. J. (2012)

<sup>95</sup> *ibid.*, p. 41

### GLOBAL EDUCATION REFORM TRENDS ARE SEEING CHANGES IN<sup>95</sup>

#### EDUCATIONAL CONTENT STRUCTURE:

traditionally disciplinary-based and conceptually abstract and separate from the real world



now moving toward exploring community problems through interdisciplinary studies.

#### LEARNING PROCESSES:

traditionally teacher-centred, stressing knowledge transfer and developing cognitive skills



now moving toward student-centred participatory learning based on analytical thinking and decision-making.

#### SCHOOL ORGANISATION:

traditionally hierarchical with limited teacher, parent and student participation and no connection to the surrounding community



now moving toward more participatory decision-making involving the whole school and community.

In this way, the educational system in a country like Cyprus is transitioning from a centralised, uniform and bureaucratic organisational framework to a system that is increasingly assisting the development of democratic, diverse and pluralistic school settings that develop the critical thinking skills, values, and behaviour of their learners.<sup>96</sup>

### ESD integration as a component of traditional subjects

One prevalent method of bringing ESD into the curriculum is by integrating it into traditional subjects. The aim here is to widen the space for ESD without the need to make the often difficult systemic changes to the existing national curricula. In this case, ESD concepts, lessons and learning are ‘hooked’ onto more traditional subjects such as geography, arts, biology and history. These disciplines can be used as a pedagogical launchpad for the study of environmental, social and sustainable development issues.

By their very nature, curricula are written documents that spell out educational priorities and provisions in black and white. They can often become politicised and driven by competing ideologies. For these reasons, many countries have adopted a strategy to use the current curriculum to weave in ESD content rather than focus on wholesale change that may face considerable resistance and challenges.

Thus, in Jordan ESD is integrated in the science curricula of primary education and other subjects by introducing SD concepts. Malaysia and the Philippines are also mainstreaming ESD as a component of traditional subjects.<sup>97</sup> In China, mandates for ESD now require its integration into the national curriculum as a topic in various subjects including biology, physics, history, geography and chemistry.<sup>98</sup>

Countries such as Colombia, Chile, Guatemala, Mexico and Paraguay all include environment and sustainable development topics in their civic and citizenship education curricula at primary and secondary level.<sup>99</sup>

While these ‘add on’ or subject integration approaches can be helpful and have the notable advantage being simpler to adopt and integrate, there is likely to be a significant trade-off in depth.

### ESD as a transversal theme

A more system-wide approach is seeing contemporary curriculum frameworks increasingly organised around core learning areas. Rather than providing a list of disciplines or teaching subjects, they propose a number of cross-curricular topics, and make reference to general or transversal themes, competencies and skills that are to be developed. These transversal themes (sometimes described as cross-curricular topics, areas, dimensions, domains, axes or priorities) are typically included as a means to:

- Reduce fragmentation and connect programmatic content across disciplinary boundaries;
- Enrich the curriculum without overloading it through the introduction of additional teaching subjects;
- Facilitate interdisciplinary thinking and collaborative learning;
- Promote teamwork among teachers from different disciplines and facilitate collaborative approaches to planning learning experiences that reinforce the collective responsibility for students’ learning.<sup>100</sup>

A global analysis by Massimo Amadio has shown that the most common cross-curricular transversal themes cover environmental or sustainability issues (appearing in 57 of the 71 countries that use transversal themes). ESD, or a closely related wording, was also shown to be commonly used as a transversal theme in the curricula of 23 jurisdictions worldwide.<sup>101</sup>

<sup>96</sup> Zachariou, A. (2017)

<sup>97</sup> Didham, R. and Ofei-Manu, P. (2018)

<sup>98</sup> Didham, R., and Ofei-Manu, P. (2012)

<sup>99</sup> Cox Donoso, C. (2010)

<sup>100</sup> Amadio, M. (2013)

<sup>101</sup> *ibid.*



ESD is commonly used as a transversal theme to foster connections across the curriculum from global citizenship to peace and environmental stewardship

In New Zealand, the exploration of transversal themes is seen as a way of dealing with issues that are relevant to students' future, to foster connections across learning areas and values, and to contribute to the development of key competences. In Finland, sustainability issues are seen as an important aspect of training competent, self-confident "environmentally conscious citizens who are committed to a sustainable way of life".<sup>102</sup>

In Cyprus, the structure of the ESD curriculum is similarly not organised according to subject matter but evolves around 12 transversal thematic units (i.e. forests, energy, water, waste management, urban development, production and consumption, desertification, transport systems, poverty, culture and environment, biodiversity, and tourism). The thematic units and the issues related to them interweave through specific expected learning outcomes explicitly defined in different learning stages.<sup>103</sup>

The system-wide transversal approach is of course welcome, as breaking down the barriers between subject silos is often be a precondition of sustainability by making connections that deliver creative cross-sector solutions.

### ESD and 'adjectival' education

Some governments have also used ESD as an umbrella policy framework to integrate so-called 'adjectival' education in primary and secondary schools: climate change education, multicultural education, health education, peace education, human rights education, HIV and AIDS education, etc. As education policymakers explore the relevance and purpose of education in society, they begin to adopt and integrate the broader lens of ESD and use that lens to reform education policy, curricula, learning outcomes and skills attainment across all levels of education.<sup>104</sup>

Peace education, as an example, is about helping students to understand and transform conflict in their own lives, in the community, and in the world at large. Considering that some 50% of the world's out-of-school children live in conflict-affected countries, continued efforts to build and consolidate peace are also highly relevant to education.<sup>105</sup>

The Government of New Zealand (Aotearoa) has demonstrated its commitment to peace education nationally and internationally in many ways, including by producing Peace Studies Guidelines for schools and establishing a Peace and Disarmament Education Trust as far back as 1987. Efforts to promote nonviolence, justice and peaceful solutions and practices through the curriculum and non-formal learning continue today.<sup>106</sup>

<sup>102</sup> *ibid.*

<sup>103</sup> Zachariou, A. and Kadji-Beltra, C. (2015)

<sup>104</sup> Buckler, C., & Creech, H. (2014)

<sup>105</sup> <http://unesdoc.unesco.org/images/0023/002336/233601e.pdf>

<sup>106</sup> <http://nzcurriculum.tki.org.nz/Curriculum-documents/The-New-Zealand-Curriculum>



## ‘Whole system redesign’: ESD curriculum revisions

There is growing recognition that ESD’s real value can be as a source of innovation to provide more systemic methods of orienting learning rather than as another subject to be added to an already crowded curriculum. In some jurisdictions this has led to a shift away from treating ESD as a separate topic and towards a more holistic, interdisciplinary and integrated concept around which a curriculum can be developed.

Through whole system redesign, ESD has the potential to transform education systems, such that the entire process of learning becomes a model of sustainability and provides regular opportunities to explore, debate and discover the meaning and implications of sustainable development.<sup>107</sup> It is important in this context that the full spectrum of the sustainable development concept is explored, as there is a common tendency to view sustainability solely in relation to the environment at the expense of social and economic dimensions.<sup>108</sup> System wide approaches to ESD can encourage students to develop awareness of the different dimensions as well as the connections between them.

Thus ‘sustainability literacy’ is built by teachers and students working together on concepts of global citizenship, social and economic wellbeing, environmental stewardship, volunteering, justice or corporate social responsibility, whilst retaining a view towards the future.

Ukrainian educators, like those in many other countries, had been used to linking ESD with the sphere of natural science. However, there was a realisation that ESD also demands great attention to social aspects, because a sustainable society cannot function without democracy, vibrant dialogue, participation and the empowerment of people. Similarly, sustainable development is only possible when human relationships are based on respect, tolerance and intercultural cooperation; so social studies, social psychology, justice issues and even philosophy play a key role. With this in mind, rather than offering additional ESD material for existing school subjects, the Ukrainian Education Ministry adopted an integrative and inclusive curriculum for ESD which has been developed over a number of years.<sup>110</sup>

In Finland, sustainable development has been one of seven topics emphasised in the core curriculum for basic education since 2006, but the role of ESD was enhanced even further in the revised 2016 curriculum. A transversal competence of ‘building a sustainable future’ is now included in all subjects. The working culture of all schools is expected to be developed around eco-social understanding so that the school itself is a learning community which exemplifies responsibility for the environment and is future orientated.<sup>111</sup>

<sup>107</sup> Didham and Ofei-Manu (2018)

<sup>108</sup> Jones P, Selby, D. and Sterling, S. (Eds.) (2010)

<sup>109</sup> QAA & HEA guidance (2014) See: <https://www.heacademy.ac.uk/knowledge-hub/education-sustainable-development/>

<sup>110</sup> Mehlmann, McLaren and Pometun (2010)

<sup>111</sup> [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/pdf/esd2014/HL\\_round\\_table\\_Statement\\_Finland.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/pdf/esd2014/HL_round_table_Statement_Finland.pdf)

## A curriculum for the future

ESD can offer an operational framework for working with students to:

- ✓ Consider what the concept of **global citizenship**, with its rights and civic responsibilities, means in the context of their own discipline and for their future professional and personal lives;
- ✓ Consider what the concept of **environmental stewardship** means for our collective and individual use of the natural resources provided by the Earth;
- ✓ Think about issues of **social justice, ethics and wellbeing**, and how these relate to ecological and economic factors;
- ✓ Develop a **future-facing** outlook, learning to think about the **consequences** of actions, and how systems and societies can be adapted to ensure **sustainable futures**.<sup>109</sup>

## CONCLUSION: CHALLENGES AND OPPORTUNITIES IN FOSTERING CURRICULUM CHANGE

Despite evident progress in a number of countries, these curriculum reforms nonetheless represent a major challenge for many existing schools and school systems and continue to face obstacles. Effective implementation of ESD, particularly if the reform is system-wide, hinges on the motivation, commitment and support of many stakeholders and institutions. If there is a lack of training, incentives or support from school leaders, the quality of ESD teaching will depend on the ideology and personality of individual teachers. As we will see in the chapter on teacher education and training, instilling ESD into competencies, professional standards, the certification and accreditation of teachers, and teacher education institutions can go a long way towards remedying this.

In education systems characterised by an ‘overburdened’ curriculum or by high-stakes examinations, ESD can sometimes be positioned in opposition to prioritised subject areas and assessed learning outcomes and remain sidelined.<sup>114</sup> In these cases, ESD has to outgrow its treatment as a thematic topic or ‘add on’ and be utilised more proactively as a holistic and system-wide approach.

These barriers and opportunities are evidence of the fundamental nature of the ongoing changes to the educational paradigm – from the old system based on rote learning and the transfer of facts to a transformative and progressive education in which critical questioning, hands-on experimentation, co-learning and the formation of judgements are not only expected but encouraged.<sup>115</sup>

## MANITOBA: preparing students to live sustainably

The Canadian province of Manitoba is considered a pioneer in promoting ESD with a huge breadth of whole system initiatives across pedagogy, curriculum, policy and capacity building. In 2009, Manitoba became the only Canadian territory to embed sustainability within the mission statement of its Ministry of Education and Advanced Learning. Sustainability is at the centre of its overarching goal “to ensure education in Manitoba supports students experiencing and learning about what it means to live in a sustainable manner.”<sup>112</sup>

In response to these policy commitments, 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. Institutional support to assist with the implementation of a three-year ESD action plan is provided by an ESD Leadership Council comprising senior representatives from educational groups, faculties of education and government departments. Building the ESD capacities of teachers and school leaders has also been a priority, with regular ESD pre-service and in-service training sessions conducted in schools and faculties of education throughout the province. Dedicated ESD funding has ensured the development of sustainability practices, programmes and partnerships and helped schools to move sustainability from paper to practice in their classrooms.<sup>113</sup>

<sup>112</sup> [https://www.edu.gov.mb.ca/k12/esd/pdfs/esd\\_mb.pdf](https://www.edu.gov.mb.ca/k12/esd/pdfs/esd_mb.pdf)

<sup>113</sup> *Ibid.*

<sup>114</sup> Buckler and Creech 2014

<sup>115</sup> [http://bit.ly/unesco\\_position\\_paper\\_ESD\\_future2r5XTyz](http://bit.ly/unesco_position_paper_ESD_future2r5XTyz)

## 5. ADVANCING TRANSFORMATIVE ESD-ALIGNED PEDAGOGIES

Something of a pedagogical revolution is underway within communities of learning around the world. Despite the continued resilient international presence of more traditional, hierarchical and top-down forms of education, spaces are opening up for more process-oriented, transformative pedagogical approaches that put the learner at the centre and embrace higher levels of participation and self-determination. Curriculum frameworks that are embracing this change tend to emphasise active, shared and collaborative learning environments. They are often rich in content, connected to local communities, use the ‘whole system’ (see chapter 7), benefit from the involvement of stakeholders across the community (as we saw in chapter 3) and reflect local culture and context (see chapter 9).<sup>116</sup> More and more teachers are also bringing the curriculum to life by taking learning outside the classroom and into the ‘real world’, finding that it can be an ideal environment for exploring almost any subject, from ecosystems to geology, from history to mathematics.<sup>117</sup>

While not all of these transformative modes of education are new – and some were being practiced long before the emergence of ESD – many have co-evolved and been strengthened by the movement. All of them embody alternative forms of teaching, learning and stakeholder interaction wherein critical thinking, systems thinking, applied learning and participation are becoming ever more important.

### ‘How’ can be more important than ‘what’

One of the primary aims of ESD is to equip students with deep practical sustainability knowledge, understanding, skills and attributes. As a result, the discipline encourages a hands-on and learner-centred approach with a strong emphasis on practice-led methods. The results of this direct and experience-led approach can be far-reaching. How learners develop their attitudes, characters and core beliefs determines – to a significant extent – how they act and make decisions throughout their lives. Interestingly, research shows that *how* we learn in the context of ESD is equally – if not more – important than *what* we learn. Process is just as important as content. Studies looking at the impacts of ESD in 18 countries found that the learning approaches of ESD actually had a stronger transformative impact than the sustainability content.<sup>118</sup> That is why the development of ESD as a catalyst towards more holistic, transformative and hands-on pedagogies is also crucial; ideally becoming a core part of its practice and implementation.

### Pedagogies and processes aligned with ESD

In 2010, UNESCO commissioned an expert review on processes and learning for ESD. The resulting report, authored by Daniella Tilbury (2011) identified which commonly accepted learning processes are aligned with ESD and should be promoted through ESD-related programmes and activities. The review also identified how certain key processes tend to underpin ESD frameworks and practices. These include:

- processes of collaboration and dialogue (including multi-stakeholder and intercultural dialogue);
- processes which engage the ‘whole system’;
- processes which innovate within curricula as well as through teaching and learning experiences; and,
- processes of active and participatory learning.<sup>119</sup>

<sup>116</sup> Amadio, M. (2013). See: <http://unesdoc.unesco.org/images/0022/002259/225939e.pdf>

<sup>117</sup> Beames, S. Higgins, P. & Nicol, R. (2012)

<sup>118</sup> Wals, A. E. J. (2012)

<sup>119</sup> Tilbury, D. (2011)



*How we learn can often be more transformative than what*

Happily, there are a wealth of pedagogical approaches, teaching practices and learning methods that have been adopted or adapted to implement ESD at different educational levels and in varied educational settings that embody these features. Increasingly, they are also now moving from the margins to the mainstream. For example, European states report high achievement rates for advancing ESD competencies (92%) and for the use of ESD-related pedagogical approaches in early childhood, primary and secondary education (95%).<sup>120</sup>

## A learning revolution with many names

One of the inspiring features of ESD is the huge range and diversity of associated forms of teaching and learning that are being reported across the world. These are both old and new, culturally nested and more generally adaptable, but all bear a certain family resemblance. When viewed broadly, many of these educations revolve around common themes and overlap at the core. This 'compatible diversity' adds weight to the argument that ESD does not represent yet another 'education' so much as a mechanism for engaging people in sustainable development using a range of innovative approaches to match local needs.

In this way, development education, peace education, human rights education, learning for sustainability, environmental education, outdoor learning, environmental literacy transdisciplinary learning, transformative learning, climate change education, cross-boundary learning, discovery learning, action learning, social learning, philosophical enquiry, self-learning, experimental learning, education for empowerment, community-based learning, action-based learning, livelihood skills training, and the many other emerging pedagogies are all part of a connected attempt to better engage, explore, understand and improve the world around us.<sup>121</sup>

<sup>120</sup> UNECE, (2016)

<sup>121</sup> Wals, A. E. J. (2012)



*Children and young people are the future of the planet. We have immense potential and possess the capability to bring about lasting positive change. Education for Sustainable Development provides us with the skills we need to initiate this transformational paradigm shift and should, therefore, be a key element of our educational systems.*

**Kehkashan Basu**

Founder of the Green Hope Foundation;  
Youth Ambassador of the World Future Council

## Active/participatory learning

Active and participatory learning have been broadly identified as core processes underpinning ESD by many researchers and commentators worldwide. Techniques such as group discussions, problem-based learning, critical reading and writing, debates, vision-building exercises, role-playing, outdoor field work, modelling and case studies are often employed.

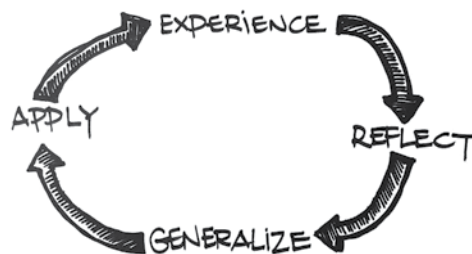
These approaches are highly valued as they encourage learners to:

- ask critical reflective questions;
- clarify their values;
- envision more positive and sustainable futures;
- think systemically; and,
- respond through applied learning.<sup>122</sup>

Through these ‘critical reflective thinking’ practices, learners can explore a multitude of topics that are relevant to ESD. For example, questions around media information, advertisements and news narratives that seek to tell us what is important in the world or about our priorities in life. These frameworks can challenge learners to examine the way they interpret the world and how the knowledge, opinions and actions of people are shaped by cultural influences, gender, advertising, faith and societal values and beliefs.

## Action learning

Knowledge can be learnt from books, but if it is to be truly internalised it often needs to be drawn upon and tested through real life experiences. Part of ESD is about giving learners the autonomy to experiment in practical ways. In action-oriented learning, students engage in a particular experiment or action and reflect on their experiences and personal development. The experience might come from a refugee project, a law internship, the facilitation of a science workshop, or the implementation of a school garden scheme. Action-learning refers to David 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 generalisation; and, 4. Applying them in new situations.<sup>123</sup>



The 4 stages of action-learning in Kolb’s experiential learning cycle

Action-learning aims to contribute to the building of knowledge and competencies while clarifying a learner’s values by linking abstract concepts to personal experience and the learner’s own life.<sup>124</sup>

<sup>122</sup> Tilbury, D. (2011)

<sup>123</sup> Kolb, D. A. (1984) *Experiential Learning: Experience as the Source of Learning and Development* Englewood Cliffs, NJ., USA

<sup>124</sup> UNESCO (2016)



## Systemic thinking

Systemic thinking is deeply relevant to sustainable development as it helps learners to ‘see the bigger picture’ and understand and manage dynamic situations marked by complexity. It seeks to overcome the ‘siloe approach’ by thinking across different disciplines as well as social, environmental and economic sectors. It aims to develop an understanding of the deeply interconnected nature of the world and how a decision can lead to both good outcomes and poor side effects, externalities or unintended consequences.<sup>125</sup> System thinking is crucial to emerging efforts to create circular economies and achieve the complex interconnected change required by the international community to achieve the 2030 Agenda.

## Applied learning

Applied learning techniques invite learners to engage real-life contexts in their ESD learning. Research suggests that applied learning furthers people’s understanding of sustainable development issues. It also increases awareness of what they and others can do for themselves to create more sustainable futures, while building confidence and self-esteem.<sup>126</sup>

## Learner centred approaches

Learner-centred pedagogy sees students as autonomous learners who are active in the development of their own skills and knowledge base. The role of an educator is changed to that of a stimulating and encouraging facilitator of the learning process.<sup>127</sup>

## Collaborative learning

Collaborative pedagogies see learning transformed into a mutual learning experience for both teacher and student. In the Teacher Learning Method (TLM), for example, educators are expected to pass through same the cycle of learning as their students. This type of approach is said to be useful when attempting to transition from a rote learning-based education system to a more participatory, holistic system of student-centred critical inquiry.<sup>128</sup>

## Transformative learning

Transformative learning 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. The educator is a facilitator who empowers and challenges learners to alter their worldviews.

## Outdoor learning

Almost any of the ESD-aligned pedagogies can be further enriched and enlivened by applying their methodologies outside the classroom. Outdoor experiences can be incredibly diverse; from ten minutes in the school grounds to a half-day visit to the wilderness or trip to a local museum. It can be a camping experience, a science experiment in the school campus or a local reserve, playing sport, or dancing in a children’s art festival. Each experience provides students with the opportunity to do and learn new things.

Children today, however, face unprecedented barriers to meaningful experience in the natural world, with 65% of even primary school learners globally getting less than one hour of outdoor time a day.<sup>129</sup> Nature and the outdoors is often seen as either messy, dangerous or too prized for children to interfere with. But this focus on risk ignores the numerous benefits of experiential outdoor learning and the increasing understanding that it is only through allowing children to explore and ‘get messy’ with nature that they will learn to care for it.

Research has shown that outdoor fieldwork is an example of experiential pedagogy that can influence students’ emotions and help develop the critical thinking skills so essential to understanding the complexity of sustainability.<sup>130</sup>

Exposure and access to nature also has important impacts on healthy childhood development, including improved health and well-being, physical fitness, the development of a broad range of social and emotional skills, and better learning outcomes.<sup>131</sup> The UK charity Mind, published research highlighting the tangible mental health benefits

<sup>125</sup> Tilbury, D. [2011]

<sup>126</sup> Barratt Hacking et al. (2010); Tilbury, D. [2011]

<sup>127</sup> Barth [2015]

<sup>128</sup> Wals, A. E. J. [2012]

<sup>129</sup> <https://outdoorclassroomday.com/wp-content/uploads/2018/05/FINAL-Project-Dirt-Survey-Outdoor-Play-and-Learning-at-School-2018-15.05.18.pdf>

<sup>130</sup> Jones, [2003]; Scott and Gough, [2003] in Tilbury (2011)

<sup>131</sup> See: <https://www.salzburgglobal.org> and Beames, S. et al. ‘Learning outside the Classroom’ [2012]

There are numerous health, well-being, emotional, developmental and educational benefits to experiential outdoor learning



of being physically active and the key role access to nature can play in reducing stress and building wellbeing and resilience.<sup>132</sup>

The Welsh phrase “*dod yn ôl at fy nghoed*” – meaning “to return to a balanced state of mind” – translates literally as “to return to my trees”.

Out of the classroom learning experiences also provide students with a range of contexts to develop key competencies and apply learning across the curriculum to real-world scenarios or issues in the local community.

Wider knowledge and experience of these benefits are changing attitudes. Two surveys of teachers across 45 countries in 2017 reveal both the desire from many teaching professionals to engage in outdoor learning and some of the benefits they experience:

- 87% of teachers want more time to take lessons outside.
- 97% of teachers worldwide believe that outdoor play and learning throughout the school day is critical for children to reach their full potential.
- 89% of teachers globally said that children are happier after learning outdoors, and teachers get 50% more teaching time in lessons that happen after outdoor breaks.<sup>133</sup>

Countries around the world are increasingly finding ways to integrate outdoor learning into the curriculum. In New Zealand, outdoor learning is embedded in the area of health and physical education. Teachers are supported in taking students out of the classroom and on education visits through an extensive website giving advice, toolkits, links to providers and resources on effective outdoor learning practices.<sup>134</sup>

In Scandinavian countries, *friluftsliv* (‘outdoor life’) is a common practice in schools, while Germany’s forest kindergartens are internationally recognised. Scotland was an early pioneer, becoming in the 1960s one of the first places in the world where outdoor education was formalised. This leadership has continued with the 2010 publication of its ‘Curriculum for Excellence through Outdoor Learning’, which was the first international government document to specifically link national curriculum aims with outdoor learning. Further policy statements have confirmed the Scottish Government’s position that the “journey through education for any child in Scotland must include a series of planned, quality outdoor learning experiences”.<sup>135</sup> The approach to the outdoor learning component of their ‘Learning for Sustainability’ model is based on regular low-cost, local outdoor experiences that can lead on to day trips that require transport and, finally, more ambitious overnight residential trips.<sup>136</sup>

<sup>132</sup> <https://www.mind.org.uk/media/336359/Feel-better-outside-feel-better-inside-report.pdf>

<sup>133</sup> <https://outdoorclassroomday.com/wp-content/uploads/2018/05/FINAL-Project-Dirt-Survey-Outdoor-Play-and-Learning-at-School-2018-15.05.18.pdf>

<sup>134</sup> <http://eotc.tki.org.nz/>

<sup>135</sup> Learning and Teaching Scotland (2010)

<sup>136</sup> Beames, S. Higgins, P. & Nicol, R. (2012)

## Appropriate learning

Whatever pedagogical approach is taken, it needs to be appropriate to the learners in question. As education researchers around the world have found, individual children experience education differently depending on a range of factors. Understanding and achievement are, similarly, not a simple linear progression but are subject to ebbs and flows over time and in response to the influence of the peer group and a pupil's own expectations on the basis of gender, race and social class.<sup>137</sup>

The types and styles of learning should therefore be appropriate, determined by context and content, and tailored to the needs of different learners and learner groups (e.g. based on age, prior knowledge, interests, abilities, etc.), and to the context in which the learning takes place (e.g. safety to learn outside the classroom, space in the curriculum, pedagogical climate, cultural traditions, political climate) and the resources and support available (e.g. facilitation, teacher competence, teaching materials, ICT, money).<sup>138</sup>

## Challenges to pedagogical innovation

The types of teaching and learning methods allowed in each region, country or school will be greatly dependent on the space allowed for elements such as participation, self-determination, creativity, collaboration, critical questioning and systems thinking. There are still many countries focused on an examination-driven curriculum whereby teachers and educational leaders are committed to the rote learning of facts. These systems will often coincide with a poor tradition of multidisciplinary teaching and learning and limited uptake of ESD-compatible learning methodologies and approaches. Until there is a shift to more transformative pedagogies, educators may have to rely on more traditional instructional modes of exploring ESD.

Many schools and teachers also face challenges of a lack of financial resources for adopting whole school, outdoor, or experimental methods. For example, the Ministry of Education in Peru is committed to expanding outdoor learning but lacks adequate funding for transport to outdoor areas for those schools without a suitable campus.<sup>139</sup>

While curriculum or institutional inflexibility and funding do pose a significant challenge to progressive pedagogies, there are other challenges that are increasingly being overcome. One of the biggest initial barriers to take-up of transformative pedagogies is teacher confidence in how to effectively deliver them. Training and ongoing professional development has been shown to be the key to overcoming this barrier. Effective, practical training is also key to demonstrating how to unpack the many diverse aspects of sustainable development in the classroom. Thankfully, there are many countries investing in reforms and improvements to their pre-service and in-service training of teachers, tutors and mentors and this is allowing more transformative pedagogical approaches to spread.



## FURTHER READING:

- Tilbury, D. (2011). *Education for Sustainable Development: An Expert Review on Processes and Learning for ESD*. Paris, UNESCO <http://unesdoc.unesco.org/images/0019/001914/191442e.pdf>
- Beames, S. Higgins, P. & Nicol, R. (2012) *Learning Outside the Classroom: Theory and Guidelines for Practice*, Routledge, New York

<sup>137</sup> MacBeath, J. & Mortimore, P. (2001) *Improving School Effectiveness*, OU Press

<sup>138</sup> Wals, A. E. J. (2012)

<sup>139</sup> Presentation of the Ministry of Education at WFC international ESD conference, Maryland

## 6. TEACHER EDUCATION, TRAINING AND RESOURCING

### Supporting agents of change

If there is one consistent finding from educational research, it is that teachers matter. The top performing education systems around the world all spend much more time and resources in recruiting, training and mentoring their teachers than the average. The results of this effort and commitment are plain to see.<sup>140</sup> Teachers have the capacity to be powerful agents of sustainable progress and genuine transformation in society. Teachers play a key role in preparing students to become responsible citizens capable of working towards an environmentally sustainable, globally interconnected, equitable and diverse society. Their knowledge and competencies are essential for the important work of refashioning learning institutions towards sustainability.

But, to meet these challenges, teacher education must reorient itself further towards ESD. The monitoring and evaluation of the DESD made it clear that the support of teachers is a vital condition for the successful adoption and implementation of ESD.<sup>141</sup> UNESCO's report on reorienting teacher education to address sustainability similarly found that a lack of sufficiently trained teacher educators who are knowledgeable about ESD has resulted in the absence of an institutional climate in which to sustainability is addressed in education. The lack of sufficiently motivated, qualified and trained teachers in some countries continues to have strong negative impact on children's learning and outcomes.<sup>142</sup>

There have been significant achievements globally in expanding access to education over the last 15 years, including impressive strides forward in the provision of 12 years of free, publicly funded, equitable, quality primary and secondary education.<sup>143</sup> But years of

schooling alone does not guarantee that students will receive an education relevant for their lives, careers and society at large. Quality – i.e. the content of the education provided, the excellence of teachers, the skills gained – matters far more than quantity.

The quality of education is dependent on teachers' breadth of knowledge and experience and how these are communicated. This in turn is dependent on both good quality pre-service and in-service training and the availability of the necessary teaching resources. As the more holistic, interdisciplinary and hands-on methods of teaching and learning discussed in the previous chapter are increasingly taken up by schools and other places of learning, teachers must be empowered to adapt. The current generation of educators and teachers must be given the opportunity of both pre-service and in-service professional learning to build the necessary knowledge, skills and values to ensure that they – and the learners they teach – are sustainability literate.

### Strengthening ESD in pre-service training

Teacher education institutions (TEIs) and teacher educators hold key responsibilities for the delivery of quality education and ESD at all levels and have wide-ranging influence on policy and practice in education. Progress in reorienting teacher education made huge strides during the DESD in terms of promotion, advancement and implementation. But the transformation in TEIs towards properly integrating ESD requires a number of phases: building awareness, capacity development, experimentation, and implementation of good practices – all of which takes time to achieve.<sup>144</sup> There is an added dynamic that, due to the independence of the higher education system from government, university or faculty ESD policies (where they exist) are not necessarily aligned with the aims and priorities of the national ESD policy.

<sup>140</sup> Crehan, L. (2017)

<sup>141</sup> UNESCO (2014)

<sup>142</sup> UNESCO (2005)

<sup>143</sup> Global Education Monitoring report (2016)

<sup>144</sup> McKeown, R., & Hopkins, C. (2014)



Where ESD is included in teacher education it is often in the form of a separate elective course or as training for specific disciplines on how to integrate ESD in their work. But whole school and inter-disciplinary teaching and learning approaches are an important aspect of ESD, as the field is dependent on such a wealth of different disciplines, so there is a strong case for integrating ESD systematically across all teacher training programmes.<sup>145</sup> ESD should be fundamental to all teacher education programmes and be integrated into their content and structure.

While there is still work to do in many countries (as recently as 2012 only 7% of countries reported including ESD in their teacher education), the increasing inclusion of ESD in pre-service teacher training and at TEIs has led to increasing progress.<sup>146</sup> This has taken multiple forms, including revised professional standards for teachers, the inclusion of ESD in the mission statement of faculties of education, and the introduction of new ESD courses, certificates and degree programmes.

Countries such as Barbados, Malaysia and Montenegro are addressing the challenges arising from teaching ESD in an integrated manner by strengthening ESD as a component in teacher training and developing specific ESD teaching guidelines. There is a mandatory provision for ESD in teacher education programmes in Belgium, Ethiopia and Sweden.<sup>147</sup> Finland and Canada, both countries that are acknowledged for their commitment to ESD and their strong performance in educational outcomes, are taking a lead in rigorous pre-service learning that emphasises the candidates' personal suitability and motivation for teaching work in addition to strong academic qualifications.

## JAMAICA: teacher education 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 explore a number of core ESD principles and approaches while attending to real-world problems and working closely with their communities, coming to understand that they can learn from, as well as help improve the quality of life in their surroundings.<sup>148</sup>

<sup>145</sup> SWEDES (2016)

<sup>146</sup> McEvoy (2012) <http://unesdoc.unesco.org/images/0024/002472/247275E.pdf>

<sup>147</sup> Didham, R. and Ofei-Manu (2018)

<sup>148</sup> Buckler and Creech (2014)





Quality training for teachers on the methods, approaches and techniques associated with effective ESD learning is crucial

### Teacher accreditation and certification bodies

To ensure that progress in embedding ESD in teacher education becomes mainstream, accreditation and certification bodies, in collaboration with teacher education institutions, should learn from pioneering countries to develop standards for teacher certification that aim to embed an understanding of ESD principles more systematically.

For example, Scotland's revision of its professional teaching standards in 2012 included sustainability as one of the core standards that teachers are accredited against. 'Learning for Sustainability' is embedded throughout the 'Professional Values and Standards' that all registered teachers and education professionals are expected to demonstrate in their practice, irrespective of their career stage. This is a significant development by the General Teaching Council for Scotland that requires a national commitment to pre-service and in-service training of all members of the profession.<sup>149</sup>

The Government of Zimbabwe has made positive strides in mainstreaming ESD by including it within the 'Handbook on Teacher Professional Standards', which is used for in-service training for teachers. These standards provide teachers with guidelines on how to apply the ubuntu/hunhu philosophy (with its ESD-friendly focus on cooperation, sharing, participation and community interests) in classrooms, workshops and fields of practice.

In Switzerland, all universities and technical and vocational education and training (TVET) institutions are now required to undergo an accreditation process that includes environmentally sound management in order to generate public funds. Five years into the process, sustainability is increasingly mainstreamed in both the institutions and the courses offered to trainee teachers.<sup>150</sup>

Both China and Pakistan have also recently included elements of sustainability in the accreditation standards for their teacher education institutions.<sup>151</sup>

### Hands-on ESD learning for teachers

While teaching standards and accreditation that support sustainability principles are important, ESD pedagogies tell us that nothing beats hands-on experiential learning for embedding understanding.<sup>152</sup> Teachers, therefore, should have the opportunity of experiencing for themselves the learning methods, approaches and techniques associated with effective ESD learning during their training, so that they can deliver them in schools and classrooms with confidence and skill.

Research into the characteristics that contribute to effective teacher training has called for a complete restructuring of the existing pre-service model, which in many cases is heavily grounded in theoretical and discipline-based content rather than practical, hands-on application and skills.<sup>153</sup> Teacher education institutions

<sup>149</sup> <https://esd-expert.net/files/ESD-Expert/pdf/ESD-ToT-international.pdf>

<sup>150</sup> Interview with Christine Affolter, Environment and School Initiatives (ENSI)

<sup>151</sup> SWEDES (2016)

<sup>152</sup> <https://blogs.glowscotland.org.uk/glowblogs/lfsblog/files/2018/01/Learning-for-Sustainability-effective-pedagogies-LFS-Research-Briefings-No.4.pdf>

<sup>153</sup> Stoddart, T. et al. (2013)

should therefore ensure that teacher education modules include a holistic programme of activities that incorporate:

- Action-oriented transformative pedagogies that engage learners in participative, systemic, creative and innovative thinking.
- Learning on the basis of real societal challenges in local contexts and cultures.
- Engagement with external partners (such as communities, non-formal educational institutions and ESD networks), including possibilities for project-oriented collaboration.
- Exploration of the key principles of sustainable development and ESD in their local, national and global context, as well as the different SDGs and related topics such as gender equality, intergenerational and global justice.<sup>154</sup>

Finland and Scotland are among the growing number of countries whose models of professional learning are increasingly focused on the ‘teacher-as-learner’ who facilitates learning by enquiry and collaboration and develops collective knowledge.<sup>155</sup>

The Greek Ministry of Education is taking the hands-on learning of its teachers very seriously. It has established 46 Centres for Environmental Education and Sustainability throughout the country. The projects that these centres run aim to give teachers the necessary skills, knowledge and training to implement activities related to ESD in their schools. Typically, close to 200 seminars for about 9,000 teachers of primary and secondary education take place annually.<sup>156</sup>

### In-service training and professional development

As many teachers will not have had the opportunity to learn about ESD in their pre-service training, there is a need for access to quality in-service training on

the subject. In-service professional development has a multitude of benefits, from enhancing work performance and motivation, to gaining specialist training and keeping abreast of the latest knowledge, skills and methodologies.

As we have seen from the ‘embedding resilience’ section in chapter 2, it is essential that professional development for ESD is available to more than one teacher per institution to ensure accountability, responsibility and competencies is spread as widely as possible across the institution. Ideally, ESD should be included in the professional development of leaders at all levels (i.e. school heads and principals, deans and rectors at faculties of education, and vice-chancellors).

Cyprus is one of the countries that has introduced mandatory in-service training in ESD for both principals and subject teachers. School-based seminars are conducted over a number of days by the Cypriot permanent Education Unit for ESD, which contains 19 experienced teachers specialised in delivering different aspects of ESD learning. Over 7,000 teachers have already undertaken ESD training seminars, with roughly 100 hours of optional interdisciplinary courses in ESD available to teachers across the school system.<sup>157</sup>

The Bhutanese Ministry of Education has conducted five-day workshops for all the country’s 500+ principals, college directors and selected lecturers. The participants formulated the Green School for Green Bhutan concept, which adopted ESD as a national priority alongside gross national happiness.<sup>158</sup>

Many ministries and education institutions are similarly recognising the benefits of in-service training and taking a lead. In Japan, the Education Ministry regularly organises a national conference and regional exchange meetings to strengthen teachers’ ESD competency. In Namibia, teacher-training programmes have been organised in partnership with the National Institute for Educational Development, the Wildlife and Environment Society of South Africa and the engineering company Ramboll.

<sup>154</sup> UNESCO (2017)

<sup>155</sup> <https://www.scefframework.com/media/1130/education-scotland-model-of-professional-learning.pdf>

<sup>156</sup> UNESCO (2014)

<sup>157</sup> Zachariou, A. (2017)

<sup>158</sup> Wals, A. E. J. (2012)

The United Arab Emirates has trained over 2,000 teachers on how to use current ESD pedagogies and be effective sustainability advocates in their schools and neighbourhoods. In Costa Rica, manuals and modules have been developed through pilot programmes on ESD promotion in schools.<sup>159</sup> In the European Union, 90% of member states have reported significant efforts to address the inclusion of ESD in pre-service and in-service teacher training.<sup>160</sup>

## Integrated ESD teacher training at Malmö University

Sweden's Malmö University educates teachers across all areas of schooling. Learning combines pedagogies, education, science and practice in order to strike a balance between subject and instructional related content. The institution has 27 goals on content and skills for trainee teachers, which includes global challenges, citizenship, sustainability and intercultural themes. Teachers in training for upper secondary school take the 'Global challenges in a subject context' course, which aims to provide the trainees with skills and awareness on how to implement ESD within their teaching practices.<sup>161</sup>

These examples show that progress is being made to ensure teachers and other educators are increasingly well trained, professionally qualified, motivated and supported to teach ESD.

### Peer-to-peer learning: from local to global

Good practices in the delivery of ESD – once discovered, tested and shown to be effective – needs to be shared amongst peers to encourage others to try innovative and successful techniques. Peer-to-peer learning provides an opportunity for scaling-up beyond the participating schools to mobilise other learning institutions, regions or communities.

Scotland is currently doing just that with a trial of practical peer-to-peer learning between head teachers and subject teachers at different schools to share good practice on the implementation of the 'Learning for Sustainability' model.

A similar set of processes has been introduced in the Dutch 'Learning for Sustainable Development' programme that goes beyond teachers to include peer-to-peer ESD 'learning by doing' for civil servants, policymakers and leaders in governmental organisations.<sup>162</sup>

Better communication platforms are also allowing peer-to-peer learning to happen internationally between countries and institutions. These collaborations are happening South-South, North-North and North-South and include research, professional development, organisation workshops, dissemination of ESD-related information and teaching materials, and exchange of good practices, as well as cooperation between TEIs across different regions.

There are initiatives to share best practices in ESD teacher training between Germany and China, and multi-year collaborative partnerships working to mainstream ESD in teacher education between Sweden and 42 universities and TEIs in southern Africa.<sup>163</sup>

The Caribbean Regional Network for the Reorientation of Teacher Education to Address Sustainability consists of 30 TEIs in 28 countries working to strengthen competences and promote the local cultural relevance of ESD across the Caribbean.

The Copernicus Alliance is promoting transformational learning and change for sustainable development within the higher education sector across Europe, while the Baltic University Programme connects over 200 universities and institutes throughout the Baltic Sea region.<sup>164 165</sup>

The International Network of Teacher Education Institutions (INTEI), comprised of TEIs from about 60 nations around the world, works to incorporate sustainability into their programmes, practices and policies and create locally relevant and culturally appropriate teacher education programmes for both pre-service and in-service teachers.<sup>166</sup>

<sup>159</sup> Didham, R. and Ofei-Manu (2018)

<sup>160</sup> UNECE (2016)

<sup>161</sup> SWEDES (2016)

<sup>162</sup> Wals, A. E. J. (2012)

<sup>163</sup> <http://swedesd.uu.se/education/essa/>

<sup>164</sup> [www.copernicus-alliance.org](http://www.copernicus-alliance.org)

<sup>165</sup> [www.balticuniv.uu.se](http://www.balticuniv.uu.se)

<sup>166</sup> <http://unescochair.info.yorku.ca/intei/>

## Higher education institutions

Outside of their role as teacher education institutions, universities are becoming significant players in ESD in their own right, not least as an interface between the local and the global community. With as many as 27,000 higher education institutions serving an estimated 150 million students, their reach and potential for influence in moving towards a more sustainable world is significant.<sup>167</sup> Many are integrating whole institution approaches and beginning to make more systemic changes towards sustainability by reorienting their education, research, campus operations, facilities and community outreach activities.<sup>168</sup>

In some cases, this change has been driven by government policy with Sweden, for example, amending its Higher Education Act in 2006 to state that higher education institutions must promote sustainable development to ensure a “sound and healthy environment, economic and social welfare, and justice”.<sup>169</sup>

The increasing ESD orientation is partly down to demand from both faculty and students. A large longitudinal study in the UK incorporating 21,304 university student responses showed that over 80% of students believe that sustainable development should be actively incorporated and promoted by universities. Over two-thirds believe it should be incorporated into all university courses. Similar studies in other countries have had similar findings. This strongly suggests that reframing the curriculum as means of demonstrating commitment to sustainable development presents a clear advantage to universities as a means of recruiting or retaining students.<sup>170</sup>

But often the commitment to ESD goes far deeper. Despite the inherent difficulties in reshaping deeply entrenched routines, structures and practices, more universities are engaging in the fundamental challenge of reorienting teaching, learning and research to develop new mental models, competencies and innovations that can

contribute to sustainable living. There are also examples of universities undertaking far reaching ‘greening the campus’ initiatives, integrating ESD as a transversal and transdisciplinary theme, and mainstreaming sustainability into existing higher education disciplines and research programmes.<sup>171</sup>

The Hashemite University in Jordan has conducted ongoing in-service professional development for faculty staff from various disciplines, which has led to the infusion of sustainability in 20 courses within the Faculties of Educational Sciences, Applied Sciences, and Information Technology. The University has also organised workshops in Lebanon,

Egypt and Jordan to train members of other institutions how to integrate ESD themes into university curricula.<sup>172</sup>

Plymouth University in the UK has similarly applied ESD across its teaching activities through the work of the Centre for Sustainable Futures.<sup>173</sup> The Sustainability and Education Academy at York University, Canada, is a noted example of a whole system approach to sustainability, while the University of British Columbia is widely regarded as world-leading with over 500 sustainability-related courses, integrated with globally renowned research and operational work.<sup>174</sup>

Eighty-five universities in 40 African countries are working together to integrate ESD in their teaching as part of UNEP’s Mainstreaming Environment and Sustainability in African Universities (MESA) partnership programme. Developed to support the mainstreaming of these concerns into teaching, research, community engagement and management, many of these African universities have already transformed their curricula to reflect environmental and sustainability concerns.<sup>175</sup>

More than 300 universities from over 50 countries have also joined the Higher Education Sustainability Initiative (HESI), launched at Rio+20 and led by a number of UN agencies.

All have committed to putting sustainability plans in place, teaching aspects of sustainable development across all disciplines of study, greening campuses, and undertaking transparent monitoring of these efforts.<sup>176</sup>

<sup>167</sup> Ranking web of universities, 2018

<sup>168</sup> Wals, A. E. J. (2012)

<sup>169</sup> Buckler and Creech (2014)

<sup>170</sup> <https://www.heacademy.ac.uk/knowledge-hub/education-sustainable-development-0>

<sup>171</sup> Wals, A. E. J. (2012)

<sup>172</sup> SWEDES (2016)

<sup>173</sup> <https://www.heacademy.ac.uk/knowledge-hub/education-sustainable-development-0>

<sup>174</sup> <https://sustain.ubc.ca/getinvolved/students/advising-services>

<sup>175</sup> <http://gupes.org/index.php?classid=3235>

<sup>176</sup> <https://sustainabledevelopment.un.org/sdinaction/hesi>

To assist with the dissemination of these changes in higher education, the Global University Network for Innovation (GUNi), which comprises UNESCO Chairs, higher education institutions, research centres and networks involved in pioneering social and environmental commitment, has compiled six volumes of ESD-oriented innovation in higher education.<sup>177</sup>

## Teaching resources

Many regions worldwide have a real need for usable and teachable ESD materials, including guides, web resources, manuals, campaigns, lesson plans and exercises to be developed and distributed. The 2016 Visby conference ‘Bridging the Gap – Educators and Trainers’, which gathered ESD educators, teachers and trainers from 47 countries around the world, found that there are real needs for certain materials. These include introductory courses to ESD, inter- and transdisciplinary ways of addressing the SDGs, international teacher-education courses, refugee education programmes, and educational materials that feature diverse languages.<sup>178</sup>

Yet there are also signals that in some parts of the world the main challenge is no longer a lack of ESD materials, but rather the challenge of adapting the abundance of ESD resources already available online to local contexts.<sup>179</sup> Scotland responded to an overload of STEM opportunities aimed at schools by creating a regular email digest of screened opportunities for schools and teachers. The abundance of materials also points to a need for quality testing, assurance and standards, as such materials often need to be authorised by government agencies before they can enter the formal education system. Education ministries are building impressive resources of approved ESD materials.

The Finnish National Board of Education has developed a capacity building website making a wide range of information and material on ESD available online.<sup>180</sup> Similarly, the Canadian province of Manitoba has developed a website focused on ESD which is a hub for resources and information for educators.<sup>181</sup> Turkey has developed a mobile ‘Green Pack’ that targets secondary and high school educators with ESD resources.

In Mongolia, UNESCO has supported the Government’s efforts to mainstream ESD in education systems through curriculum development and ESD institutionalisation in teacher education. An ESD course outline targeting prospective teachers attending the State University of Education and a learning resource book have been developed, as has an ESD training handbook for education planners and managers.

## CONCLUSION

The diverse developments across the university and teacher education sectors demonstrate that, despite considerable barriers in leadership capability and funding, and the complexity of integration, higher education institutions are increasingly embracing their responsibilities as key enablers of a shift towards sustainable development literacy, practice and action. Teacher education institutions can support this process by building ESD awareness, capacity development, experimentation, and implementation of good practices. Teacher accreditation and certification bodies should continue to develop standards for teacher certification that aim to embed a systemic application of ESD principles. Both national and international peer-to-peer sharing of good practice and the development of innovative ESD resources and their adaptation to local contexts should continue to be a priority.



## FURTHER READING:

- Visby Recommendations for enhancing ESD in Teacher Education [http://swedesd.uu.se/digitalAssets/606/c\\_606368-1\\_3-k\\_btgvizby2016report.pdf](http://swedesd.uu.se/digitalAssets/606/c_606368-1_3-k_btgvizby2016report.pdf)
- UNESCO, Teaching and Learning for a Sustainable Future <http://www.unesco.org/education/tlsf>
- Guide to Quality and Education for Sustainability in Higher Education <http://efsandquality.glos.ac.uk>

<sup>177</sup> <http://www.guninetwork.org/guni-reports>

<sup>178</sup> SWEDES (2016)

<sup>179</sup> Wals, A. E. J. (2012)

<sup>180</sup> See: <https://www.edu.fi/teemat/keke>

<sup>181</sup> See: <http://www.edu.gov.mb.ca/k12/esd>



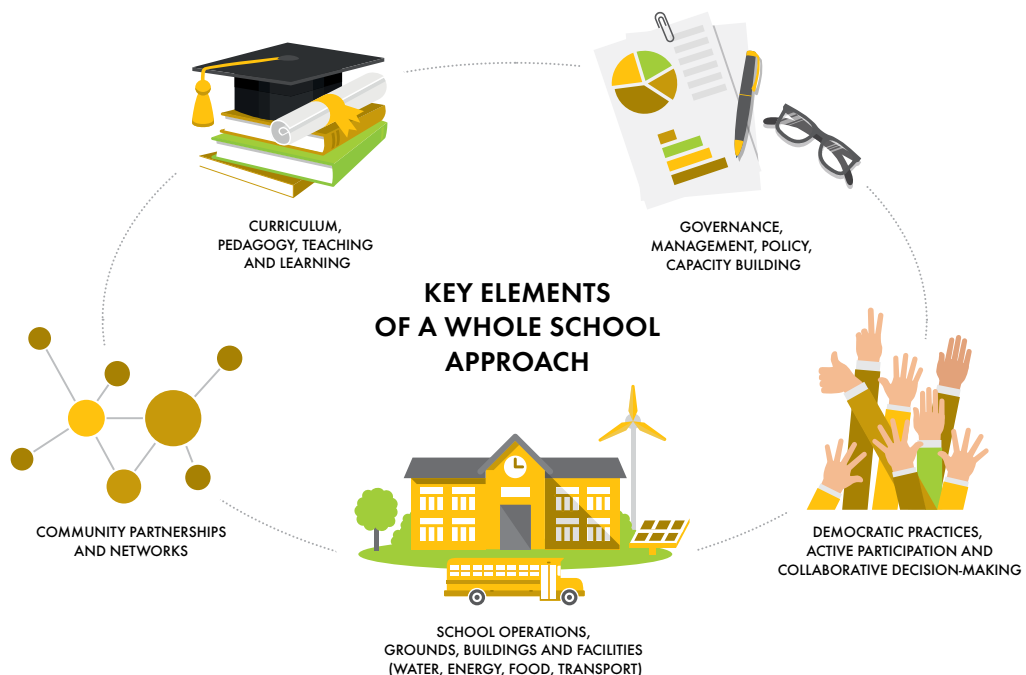
## 7. WHOLE SCHOOL APPROACHES REINFORCE SYSTEM-WIDE CHANGE

The ‘whole school’ or ‘whole system’ approach is a particularly promising mechanism for integrating ESD across an entire learning community. It aims to ensure schools, universities and other institutions are acting as role models for sustainable development in all its forms as a part of their daily practice, and moves ESD from an ‘add-on’ to the centre. Because ESD is designed to support the attainment of – as well as the education of – sustainable development, it is important that ESD is brought to life not only in the curriculum, but in all aspects of the educational systems themselves. The whole school approach brings together what is taught, how it is taught, the way things are decided and managed, the physical buildings, the grounds, the local environment, extracurricular activities, and the interactions with the wider community. It aims to reorient the whole institution towards an innovative, democratic environment that is responsive to social and community needs.

### Living what you learn

It should go without saying that institutions engaged in teaching and learning about sustainable development should, themselves, seek to walk their talk and embody the solutions they are advancing. But attempting to depart from traditional school organisation that has typically been hierarchical, with limited democratic participation from teachers, parents and students, and minimal connection to the surrounding community, can be a significant challenge.

Dealing with an existing stock of buildings, infrastructure and grounds, which often represent very poor energy efficiency and design, is also a difficulty many learning institutions are grappling with. It is understandable therefore, that genuine whole system approaches still often represent the exception rather than the rule.



However, it is an approach worth pursuing for its many benefits. Research on the impact of whole school approaches in the UK has shown wide ranging improvements in schools' ethos and student health and learning, and reductions in schools' ecological footprints.<sup>182</sup> Sustainable school design has even been credited with boosting exam results.<sup>183</sup>

Countries from New Zealand to China are increasingly using the whole school approach as a primary method of incorporating ESD in primary and secondary education.<sup>184</sup> In the UNECE region of Europe, North America, and Central and Western Asia, 76% of member states report an increase in the adoption of whole school approaches to ESD across their education systems.<sup>185</sup>

### Build on what's already there

Efforts at the school level can often fall short of the joined up whole school action that appears necessary, and integrating sustainability across a whole system has already proven quite a challenge in many schools, universities and companies. Partly, this is because the very idea can be overwhelming, suggesting, as it does, the active engagement of multiple actors in the joint redesign of basic operations, processes and relationships.<sup>186</sup>

Some ESD practitioners therefore suggest starting small and building on what is already happening. Many learning institutions will already be undertaking some important pieces of the puzzle and the key is not to become bogged down with the enormity of the challenge but rather focus each term, or even each year, on a few things that can realistically be integrated or improved.<sup>187</sup> Genuine system change can be slow and incremental.

### Towards a holistic plan

Having said that, the ultimate goals of a whole school process should be sufficiently ambitious and comprehensive to be worthwhile. Often schools take an operational perspective and focus on reducing the environmental impacts of the institution through efforts such as better waste management or campus greening. But this is only part of the picture.

The school's day-to-day operations (energy use, catering and food, staff and student mobility, decision-making structures, etc.), curriculum (course organisation, projects, content), pedagogy (approaches to teaching and learning, and the atmosphere and environment in which education takes place), community linkages (involvement of parents and other stakeholders) and resources (using the community as a living learning laboratory) are all equally important parts of the system and need to be engaged.<sup>188</sup>

### Key questions for building whole school approach

There are several questions to consider for each of these different components, including:

- Rethinking curricula to ensure they reflect our changing world: Are global citizenship and education for sustainable development taught? Are new concepts and competencies covered?
- Redesigning the schools' operations and environmental management: Are school buildings designed to embrace their natural surroundings? Does the school conserve water and energy? Provide healthy food? Minimise waste and provide a sustainable, green and learner-friendly campus?
- Reforming pedagogy and learning. Are teaching and learning inclusive, systemic, transformative and appropriate? Are emerging subjects and concepts covered and new competencies taught?
- Strengthening community relationships: Does the school connect with and contribute to community issues, priorities and resources? Are community leaders and other stakeholders engaged in school activities?

<sup>182</sup> Hacking et al. (2010)

<sup>183</sup> [https://www.huffingtonpost.co.uk/green-futures/sustainable-schools-project\\_b\\_5750786.html](https://www.huffingtonpost.co.uk/green-futures/sustainable-schools-project_b_5750786.html)

<sup>184</sup> Didham, R. and Ofei-Manu (2018)

<sup>185</sup> Buckler, C., & Creech, H. (2014)

<sup>186</sup> Wals, A. E. J. (2012)

<sup>187</sup> Interview with Reiner Mathar, Former ESD coordinator in the state of Hessen, Germany

<sup>188</sup> Wals, A. E. J. (2012)



As these questions suggest, the whole school approach is not something teachers can implement alone; policy makers, school management, community leaders, teachers and students need to work together to develop this sort of inclusive, equitable and sustainable learning environment.<sup>189</sup>

The support of school leadership, (e.g. principals, head teachers, school boards and administrators) is particularly important. Through their roles in strategic decision making, as well as funding allocations, hiring, promotion and purchasing, etc. they make a crucial contribution to the successful implementation of a whole school approach.

### Collaborative, democratic decision making

Democracy, participation and inclusion are key principles of sustainability. Whole school processes are best served if genuine models of participatory learning and decision making form the basis of the process. Individuals across the school community – leadership, teachers, learners, administration and parents – should not only be given opportunities to participate in discussions but should also be involved in jointly developing a vision and plan to implement ESD.

Where collaborative, whole school models have been embraced, the impacts have often been impressive. In Finland, these processes were judged to have had social impacts such as generating participatory skills across the school community and promoting active and democratic learning methods that are crucial in promoting sustainable development.<sup>190</sup>

<sup>189</sup> <https://gemreportunesco.wordpress.com/2016/11/15/what-is-the-whole-school-approach-to-environmental-education/>

<sup>190</sup> KIS, Finland in Wals, A. E. J. (2012)

<sup>191</sup> Mehlmann, M., McLaren, N. and Pometun, O. (2010)

<sup>192</sup> Wals, A. E. J. (2012)

<sup>193</sup> Visits to schools in Maryland and Scotland by the author Alistair Whitby.

The Ukrainian ‘Lessons for sustainable development’ curriculum is similarly open to embracing the wisdom of young learners. Collaborative learning and skill building are allowing students to develop the conviction that they, their community and humankind have a worthwhile future that they can help shape.<sup>191</sup>

Across the Eco-Schools movement (see chapter 8) there is a strong understanding of the importance of student-led change and the benefits to disseminating power to the point of implementation. Since students act as the eyes and ears of behavioural change, schools should build processes and systems to support them.<sup>192</sup>

### The campus as a learning environment

Whether institutions acknowledge it or not, students will learn about sustainability – and whether it is taken seriously – from their school or university campus. The provision (or lack) of cycling facilities, engagement in democratic decision making, or access to local food from school gardens, all send messages to students about how they should think and behave.

Strengthening these sometimes subtle or unconscious messages about behaviour with explicit links between school lessons and the campus can be a huge boost to ESD learning. Not only are campus-based examples illustrating a lesson much more tangible, relevant and easy to understand for learners, but they are particularly effective for being both memorable and enjoyable.

Growing fruit and vegetables is a popular way of using the campus to teach lessons about healthy eating, entrepreneurship and a range of biological processes such as photosynthesis. Schools in both Maryland and Scotland are using vegetable gardens and small flocks of chickens as a way for students to learn about setting up and running a business. Produce such as eggs and jam are sold in local stores and the book-keeping and management of the enterprise run by the students.<sup>193</sup>

Similarly, increasing biodiversity within the campus through butterfly gardens, wetland creation, ponds or bird feeders is hugely popular with all age groups and abilities and many schools allow their curriculum to come alive by developing habitats within their grounds.



Green School Bali, Indonesia

In some countries, these campus efforts also benefit from the support of a wide range of organisations, initiatives and programmes that provide funding, lesson plans or expertise.<sup>194</sup>

Taken collectively, ‘greening the campus’ efforts can have a significant impact. When it suffered extreme temperatures of 50 °C in 2017, Paris shut its schools down for days on end. Now plans under Project Oasis are converting the concrete schoolyards of all the city’s 800 schools into tree-filled ‘islands of cool’. These newly greened spaces will not only address environmental challenges but aim to improve social cohesion and community connections by opening up to vulnerable people during heat waves.<sup>195</sup>

Ambitious campus greening is also taking place across the Canadian province of Manitoba where new schools are being built and retrofitting of existing schools is taking place using the Leadership in Energy and Environmental Design (LEED) standards. Funding for all schools to create outdoor learning spaces and eco-friendly playgrounds has also been provided.<sup>196</sup>

<sup>194</sup> Wals, A. E. J. [2012]

<sup>195</sup> <https://www.theguardian.com/cities/2018/aug/16/could-greening-every-paris-schoolyard-cool-the-city>

<sup>196</sup> [https://www.edu.gov.mb.ca/k12/esd/pdfs/esd\\_mb.pdf](https://www.edu.gov.mb.ca/k12/esd/pdfs/esd_mb.pdf)

<sup>197</sup> <https://www.greenschool.org/>

<sup>198</sup> Didham, R. J., and Ofei-Manu, P. (2018)

## CASE STUDY

### Green School Bali, Indonesia

A model example of a ‘learner friendly’ whole school environment is the Green School Bali, Indonesia, which aims to “educate for sustainability through community-integrated, entrepreneurial learning, in a wall-less, natural environment”. The school uses a holistic student-centred approach to inspire and empower learners towards green leadership. The campus – which sits in south-central Bali on 20 acres of rolling garden – is designed around the principles of an organic permaculture system with classrooms wholly built from sustainable bamboo structures.<sup>197</sup>

As of 2018, over 400 learners from over twenty-five countries attend the school. Living by example, the school has avoided concrete pavements and petrochemicals by substituting them with volcanic stones and gravel laid by hand. Green School Bali generates its own energy from solar and hydro power. It uses compost toilets and grows its own sustainably farmed food, which is cooked on sawdust burners and served with plates made from 100% natural materials. All the fences in and around the school are made from green materials. The classrooms have no walls and the teachers write on bamboo blackboards or put paper behind old automobile windshields to convert them into alternative whiteboards.

Green School Bali, is a place for exploration, learning and community and a pioneering example of whole school principles in action.<sup>198</sup>

## 'Whole-city' approaches to ESD

We know ESD can work well at the level of individual learners, schools, institutions and communities but, in Japan, cities such as Omuta and Okayama are showing that the ESD whole system approach can also grow and function well at the scale of cities. In Okayama the 'whole-city' approach is a very successful, systemic and city-wide, locally-rooted take on ESD involving wide citizen and community engagement across a range of sectors including schools, the government, corporations and other civil society associations.<sup>199</sup> Weekly ESD classes in schools start in the 3<sup>rd</sup> grade, while 37 community learning centres (CLCs) called 'Kominkans' located across the city serve as ESD learning hubs for the general population. Over 90 clubs at these learning centres engage people in cooking, dancing, local history and projects to improve the local environment.<sup>200</sup>

In Omuta all public elementary schools and junior high schools are UNESCO Associated Schools Project Network (ASPnet) members, embracing support for international understanding, peace, intercultural dialogue and sustainable development. Their activities vary from learning about their city and world heritage, to collaborating with the local community to raise funds to improve the city environment or learning how students can improve the lives of elderly people.<sup>201</sup>

As home to half the world's population and poised to absorb the bulk of future population growth, cities are key to addressing sustainability challenges. Urban communities are pivotal drivers for sustainable development and, as such, merit strong support in their efforts to scale up ESD solutions. Initiatives such as the UNESCO GAP Flagship Project to train implementers in cities, local authorities and municipalities in how to mainstream ESD, which has already reached 145 local authorities in 68 countries, need to be further spread.<sup>202</sup>

## International whole system approaches

Remarkably, there are also successful examples of the ESD whole system approach being applied internationally. For example, the Pacific ESD Strategy is a framework organised by Ministers of Education of Pacific Rim countries to work jointly on solutions to common sustainable development issues such as rising sea-levels, cultural erosion and rising unemployment. It is underpinned by a systemic whole approach to ESD that includes very broad multi-stakeholder engagement, incorporates cultural and intergenerational perspectives, builds on indigenous and local knowledge, and strives to address sustainable development challenges such as biodiversity loss, youth unemployment and plastics use.<sup>203</sup>

The success of whole-institution approaches at such different levels of governance seems to suggest that meaningful progress towards sustainability in education, learning and across broader society, can best be achieved when the whole system is engaged. Schools, educational institutions and those involved in early childhood education, technical and vocational education and training and non-formal learning can all benefit from implementing sustainability plans or strategies that take this systemic 'big picture' cross silo approach.



### FURTHER READING:

- The ASPnet project 'Implementing the Whole-Institution Approach to Climate Change' provides training, pedagogical resources and support to the 262 participating schools in 25 countries. <http://unesdoc.unesco.org/images/0024/002467/246740e.pdf>
- Education for Sustainability Starter Kit: <http://www.sustainableschoolsproject.org/tools-resources/starter-kit>
- Education for sustainable development: Sourcebook <http://unesdoc.unesco.org/images/0021/002163/216383e.pdf>

<sup>199</sup> <http://unesdoc.unesco.org/images/0024/002489/248941E.pdf>

<sup>200</sup> <https://en.unesco.org/prize-esd/2016laureates/okayama>

<sup>201</sup> See: <https://en.unesco.org/news/record-numbers-celebrate-aspnet-national-conference-japan>

<sup>202</sup> <http://unesdoc.unesco.org/images/0024/002462/246270e.pdf>

<sup>203</sup> Tilbury (2011)



## 8. SCHOOL CERTIFICATION SCHEMES PUSH AMBITION

Certification or recognition schemes can be another important lever of wide-scale changes to the campus, curriculum and culture of schools. Undertaking schemes and programmes such as ‘Sustainable Schools’, ‘Eco-Schools’, ‘Green Schools’ - or one of their many national or regional variations - can be a huge help for schools in realising their ambitions of more systemic change.

Often supported by a national education authority or a sustainability-oriented NGO, all these schemes strive to address multiple aspects of a whole school approach by offering some type of framework that allows schools to become accredited once they meet a defined set of criteria. These criteria may depend on highly process-oriented methods (using indicators of participation, self-evaluation, creativity, etc.) or more outcome-based procedures (using checklists to determine whether the school has taken specific measures, such as becoming CO<sub>2</sub>-neutral or integrating sustainability topics across the curriculum). Some school certification schemes use a mix of both.<sup>204</sup>

Whichever strategy is used, they are widely recognised as positively contributing to the sustainability of schools, raising the ambition of their ESD initiatives and empowering students to take action both within the school environment and in the wider community. Encouragingly, research on some certification schemes is also finding evidence of positive impacts on wellbeing, behaviour, motivation and cognitive skills that benefit the whole school community.<sup>205</sup>

### Eco-Schools

Eco-Schools is one of the largest of the certification programmes, engaging 19.5 million children across 67 countries and awarding certificates to tens of thousands of schools that are working to embed sustainability.

The Eco-Schools programme provides a framework for learning and action around ten key topics – biodiversity, energy, the marine environment, litter, global citizenship, healthy living, school grounds, transport, waste and water. Schools taking part follow a defined seven-step process on their journey to achieving a Green Flag Award.<sup>206</sup>



Eco-Schools:  
The Seven Steps to Green Flag success

In some jurisdictions, there is a strong correlation between the number of schools that are certified according to the Green Flag standard and successful ESD implementation by local municipalities. For example, in Sweden, schools have in part relied on NGO initiatives such as the Green Flag certification scheme and the World Wide Fund for Nature (WWF) model school programme to provide a framework and momentum for their ESD activities and whole school approaches.<sup>207</sup>

<sup>204</sup> Wals, A. E. J. (2012)

<sup>205</sup> [http://www.keepbritaintidy.org/sites/default/files/resources/KBT\\_Eco-Schools\\_Informing\\_a\\_new\\_horizon\\_2013.pdf](http://www.keepbritaintidy.org/sites/default/files/resources/KBT_Eco-Schools_Informing_a_new_horizon_2013.pdf)

<sup>206</sup> <https://www.eco-schools.org.uk/>

<sup>207</sup> <http://transgressivelearning.org/portfolio-items/sweden/>

## UNESCO Associated Schools Network (ASPnet)

ASPnet links 11,500 member educational institutions in 182 countries across the world in support of international understanding, peace, intercultural dialogue, sustainable development and quality education. Membership and certification are based on a formal review and a firm commitment by the school leadership to reinforce the humanistic, ethical, cultural and international dimensions of education.

The network uses three complementary approaches:

1. **Creating:** Developing, testing and disseminating innovative educational materials and promoting new teaching and learning approaches.
2. **Teaching & Learning:** Capacity-building, innovative teaching and participative learning in specific thematic areas to allow schools to become role models in their community.
3. **Interacting:** Giving its stakeholders opportunities to connect and exchange experiences, knowledge and good practices with schools, individuals, communities, policymakers and society as a whole.<sup>208</sup>

Some countries and regions have seen very strong uptake, with ASPnet schools in Japan increasing from 19 in 2005 to over 1,000 today, after the network was adopted as a proven method of introducing a whole school approach in learning institutions.

## Diverse national and regional certification schemes

National variations on certification schemes abound, including ‘Enviro schools’ in New Zealand, Adiwiyata green schools in Indonesia, and the Sustainable School Award initiative in Greece. There is also a wealth of ‘green school’ and ‘sustainable school’ programmes around the world with various certification criteria and rates of uptake. For example, in 2014, over half (52%) of

the 537 Manitoba schools reported having a sustainable school plan in place, while 40% of schools in Finland and 33% of schools in Australia reported belonging to their equivalent national sustainable school initiatives.<sup>209</sup>

Chile’s National System of Environmental Certification of Schools (*Sistema Nacional de Certificación Ambiental de Establecimientos Educacionales*) is open to all educational establishments in the country and currently certifies over 1,500 schools. Its key objective is to promote ESD and sustainable values in the three areas of pedagogy, school management and in the relationship of the educational community with the environment.<sup>210</sup>

In the Asia-Pacific region, there have been a number of programmes at the school level, with China designating 1,000 schools as experimental ESD schools.<sup>211</sup>

## Learner participation is key

One common and integral factor in virtually all certification schemes is a strong focus on learner engagement and participation. Young people must have the opportunity to suggest and lead activities across the school that enable wider sustainable behaviours. In Eco-Schools a key element is the involvement of pupils in the whole process, including monitoring, action planning and decision making, leading to ownership of the programmes and an increased sense of responsibility for the environment and the local area. The sense of democracy involved and the motivation in resolving initiatives brought forward by the students themselves are products of this process.<sup>212</sup>

Strong participation is also central to Indonesia’s Adiwiyata green schools programme, which has granted awards to 463 schools that have successfully demonstrated the integration of ESD principles in their management, curriculum and learning processes. Learners in the school community take a hands-on role in the creation of the programmes, which include actions on renewable energy, waste management, environmental protection and healthy foods.<sup>213</sup>

<sup>208</sup> See: [https://aspnet.unesco.org/en-us/Pages/About\\_the\\_network.aspx](https://aspnet.unesco.org/en-us/Pages/About_the_network.aspx)

<sup>209</sup> Buckler and Creech (2014)

<sup>210</sup> <http://portal.mma.gob.cl/tag/sncae/>

<sup>211</sup> GMES China, in Wals, A. E. J. [2012]

<sup>212</sup> <https://www.eco-schools.org.uk/about-us/benefits-of-joining/>

<sup>213</sup> <https://en.unesco.org/greencitizens/stories/adiwiyata-green-schools>



Strong involvement of learners in decision making and implementation leads to greater ownership

## Making school certification a success

Despite the diversity of different school certification approaches being implemented around the world, there appear to be some common factors that are likely to make the implementation of a certification scheme a success.

- A certification framework that is easy for all stakeholders to follow, logical and achievable within a manageable time frame (e.g. 2-5 years).
- The presence of internal and external support networks that can offer guidance for coordinators and committees.
- The clear allocation of accountability and responsibility for different parts of the certification plan/framework.
- Strong mechanisms that embed resilience (e.g. succession plans) so that changes in school personnel don't derail implementation.
- The strong and regular engagement of school leadership to enhance buy-in and understanding of the programme benefits
- Incentives, awards and visible encouragement for both learners and teachers that take an active and impactful role in delivery.
- The creation of observable, tangible results (e.g. live digital displays of how much renewable energy has been generated by the school or the visible greening of the campus) will further drive engagement.

Another factor that is likely to have a big impact on the long-term viability and success of a certification scheme is whether the goals, criteria and methodologies match – or at least don't conflict – with priorities in the national core curriculum. If there is a significant mismatch it's unlikely the scheme will thrive. Primary schools tend to find the certification topics more directly relevant to the curriculum across the board and easier to blend into their activities and curriculum.<sup>214</sup>

## CONCLUSION

Certification or recognition schemes can be another important lever for ESD implementation and can be a huge help for schools in realising their ambitions of more systemic change.

To have a truly significant impact that starts to measure up to the scale of the sustainable development challenges we face, certification schemes that have not done so already will need to move beyond the focus on 'light green' or 'easy win' issues such as improved recycling rates. Instead, they will have to start working towards more fundamental, systemic, whole school approaches that take in topics such as biodiversity, energy, sustainable food production, and a school's place in its community. Places that take this leap can become models of sustainable innovation.

## 9. LOCAL, CULTURALLY RELEVANT, 'PLACE-BASED' LEARNING

There is no 'one size fits all' version of ESD. Different countries and regions all have their own unique challenges, local contexts, cultures and histories. All this richness and diversity affects the way ESD is perceived, adapted and implemented. Ensuring that these local realities, strengths and resources – including traditional and indigenous knowledge – are a bedrock of ESD policy and practice is central to its ongoing relevance and success.

This is necessary not only so that ESD can adapt to local political and cultural realities, but so that it can respond to specific social, economic and ecological challenges. Education plays an important role in reducing vulnerability and building the resilience of communities. For example, countries most at risk of sea-level rise, deforestation, tropical storm damage or illegal mining can benefit greatly from embedding 'disaster risk reduction' or 'climate change education' in their school systems, as Guyana and the Dominican Republic have done.

Similarly, countries like Bhutan, Guatemala and Zambia are showing how their local cultural practices and beliefs can be celebrated and woven into ESD practice. This can even take the form of decentralising a specific proportion of the curriculum to cover local and cultural issues, as a number of countries in East and Southeast Asia have done.

Thankfully, teachers are often keenly aware of the local cultures they serve and the particular challenges and issues facing their school communities. This local sensitivity is so important that teacher education institutions (TEIs) are beginning to incorporate it into the preparation and professional development of educators. Either way, if teachers are given the necessary flexibility and autonomy in implementing the curriculum and managing their daily activities, they can tailor ESD learning to local needs in a multitude of ways.

### Integrating local issues makes learning more 'real-world'

Schools, universities and other places of learning are increasingly orienting themselves more towards reflecting the broad nature of the societies in which they are embedded and focusing more on learning around issues that have genuine meaning and value for their learners.

One of the most effective ways of doing this is to provide a measure of flexible implementation at the local policy level. Thailand, China, Indonesia and Viet Nam have all adopted the idea of a decentralised and locally-based component of the national curriculum to extend the learning environment into a practical, real-world context and increase community relevance.

In Indonesia, a series of 'centres for education, development and empowerment' have been established around the country. These centres – a few of which focus specifically on ESD – provide key support to teachers and educators through the development of locally-based learning modules and teaching materials.<sup>215</sup>

China has similarly allowed schools to determine about 10% of the total curricular hours based on local priorities. Many schools have chosen to embed the core values of ESD through a community curriculum using themes known as the 'Four Respects of ESD': Respect for All, Respect for Cultural Diversity, Respect for Nature and Respect for Science.<sup>216</sup>

<sup>215</sup> Wijdjanti, Matakupan and Didham (2014)

<sup>216</sup> Buckler, C., & Creech, H. (2014)

## Thailand's decentralised ESD curriculum

Since 2008, one of the five ways Thailand has embedded ESD practices has been through the introduction of a provision for 30% of subjects across the entire curriculum to be made up of decentralised, locally-based topics. Lessons and teaching address subjects that are relevant to the local context and often include sustainable lifestyle issues and the Thai philosophy of the 'sufficiency economy'; a local interpretation of sustainable development.<sup>217</sup> The provision for decentralised curriculum allows schools like Bansunkong School, located in the hill tribe community in the far north of Thailand, to draw upon the traditional knowledge and practices of the Akha people to which 90% of the pupils belong.<sup>218</sup> These practices are used in the school's applied agricultural science programme and to develop solutions to local sustainability issues. The school also focuses on the Akha's cultural heritage within its arts subjects and as a means of increasing the effectiveness of community outreach. The breadth of year-round ESD based extra-curricular activities at the school's integrated community learning centre available to both students and the local community has seen Bansunkong become a 'life university' for people of all ages and a true cultural hub.<sup>219</sup>



ESD principles are often highly compatible with local traditional cultures

### Embracing the value of local culture and knowledge

Given the increasing influence of globalisation on the erosion of cultural identities and local or indigenous practices, there is a key role for ESD to play in highlighting, reflecting and validating the diverse cultures and practices in which it operates. There are numerous examples from around the world which show how ESD can be deeply compatible and adaptable to local cultures and traditions.

In Bhutan, where ESD has been combined with the national philosophy of gross national happiness (GNH) and focuses on mindfulness and compassion for learners, all schools make GNH/ESD plans and review them bi-annually.<sup>220</sup> In a similar effort to reflect local cultures, Australian states have often embedded ESD values in subjects that promote multicultural and indigenous education.<sup>221</sup>

An example from the Pacific Islands shows that ESD principles can be highly compatible with traditional cultures: in Tonga, the main purpose of learning is believed to be gaining

<sup>217</sup> Didham, R. J. & Ofei-Manu, P. [2012]

<sup>218</sup> [https://www.accu.or.jp/esd/forum\\_esd\\_2010/program/program08\\_02/pdf/presentation.pdf](https://www.accu.or.jp/esd/forum_esd_2010/program/program08_02/pdf/presentation.pdf)

<sup>219</sup> Wals, A. E. J. [2012]

<sup>220</sup> <http://www.education.gov.bt/>

<sup>221</sup> UNESCO [2014]



knowledge and understanding considered important for cultural integrity and *nofo fakapotopoto*, which refers to ‘intelligent living’ in harmony with nature.<sup>222</sup>

In Zambia, traditions and artefacts from the local communities are becoming part of the learning processes in formal and non-formal education with handicrafts and artworks providing opportunities for strengthening both cultural identity and entrepreneurship.<sup>223</sup>

A network in Guatemala which specialises in education to promote ESD in society is helping to preserve Mayan traditional knowledge by promoting its inclusion in different areas of the curriculum such as engineering and astronomy.<sup>224</sup>

### Connecting theory with experience

This localisation also extends to ensuring that the everyday realities and experiences of learners are used as a vehicle to explore key concepts and theories, which can otherwise remain meaningless without practical applicability in real people’s lives. In our world of complex interconnected problems such as biodiversity loss and unsustainable consumption, ESD can help learners acquire the necessary skills to reflect on their relationship with the natural world, make connections between abstract concepts and their observed realities, and alter their behaviour.

It is important for learners to be given the tools to understand the links between, for example, certain consumer behaviour and climate breakdown, plastic pollution or sweatshop labour.

Understanding the essential principles of these processes enables learners to assess news stories, contribute to everyday conversations and actions as informed citizens and make important lifestyle decisions. Taking part in ESD learning activities can also be an effective way of demonstrating the interdependence of the modern world and the international repercussions of our individual and collective choices and behaviour.



## Japanese schools linking local to global

Japan has responded to severe disasters, such as the earthquake and the tsunami of 2011, by taking the opportunity to reconstruct education in every area in connection with ESD.<sup>225</sup> For example, an environmental education programme developed in Aichi Prefecture in Japan helps children deepen their understanding of climate change by measuring the concentration of carbon dioxide in their local environment. Students walk through the school grounds and surrounding areas with instruments that measure the presence of carbon dioxide and create a concentration map using different colours to show the varying levels of density of this greenhouse gas. By seeing that carbon dioxide density is greater near streets where there are higher concentrations of vehicle exhaust fumes – and that it drops near vegetation which absorb the gas – students can learn about one of the factors that contribute to climate change and the role played by the photosynthesis of green vegetation and trees in mitigating its effects.<sup>226</sup> This is a classic case of empowering young people to think of environmental problems from a global perspective, using data they have gathered in their own surroundings. This type of experiment can be hugely empowering and offers learners new understanding of how they can individually and collectively work to address a serious problem. Schools in Taiwan and mainland China have now also adopted this programme.

<sup>222</sup> Thaman, K. H. and Thaman, R. R. (2009)

<sup>223</sup> Wals, A. E. J. (2012)

<sup>224</sup> SWEDESD (2016)

<sup>225</sup> Wals, A. E. J. (2012)

<sup>226</sup> <https://www.japantimes.co.jp/news/2018/07/16/national/greenhouse-gas-education-program-developed-aichi-professor-proves-popular-home-abroad/#.W1iaVignblU>

## Global challenges and local education responses

One central motive that ESD pedagogies, principles and methods of instruction have in common is an effort to make the educational process directly relevant to people's lives and focus learning on the solutions to actual problems that communities are experiencing. To live up to its inclusive ideals ESD must ensure that this movement includes marginalised views and minority perspectives. Exploring how global challenges are concretely impacting local people can help teachers and students alike to understand the complexity and interconnection of sustainability issues. It can also help to crystallise the profound benefits of having an ESD literate population.

After typhoon Yolanda struck the Philippines in 2013, universities established various initiatives to address disaster risk reduction and climate change adaptation gaps within their teaching. Both students and the community volunteered in rebuilding houses and infrastructure, the construction of a flood control catch basin, water recovery facility and the increased usage of renewable energy sources.<sup>227</sup> The natural disaster transformed from a crisis to an opportunity and significantly shaped the perception of the need for ESD amongst the whole community.

In another region increasingly prone to extreme weather, ESD teaching in the Caribbean has been significantly influenced by climate change education (CCE). In response to the significant vulnerabilities to sea-level rise, increased temperatures, rainfall and intensity of storms, freshwater decline, decreased food security and coral bleaching, a number of Caribbean nations have turned to education for solutions.<sup>228</sup>

In Nepal, it was a culmination of sociocultural problems, economic challenges and the increasing effects of globalisation that compelled the Ministry of Education, Science and Technology to reorient its education to ESD.<sup>230</sup>



Teachers from every educational level have undertaken extensive training to be able to deliver the Dominican Republic's climate curriculum

## Dominican Republic: climate vulnerability leads to CCE

The Dominican Republic is pioneering an education-based approach to climate change resilience motivated by the huge climate vulnerabilities the country faces. In 2012 a new National Strategy "to strengthen human resources and skills to advance green, low emission and climate resilient development" was introduced. The strategy took a system-wide and results-oriented approach to strengthening both individual and institutional capacities. It involved a huge cross-governmental education programme to bring all relevant stakeholders and sectors in society (including media, business and civil society) to a good level of understanding on climate change challenges. Within the education system itself there was also huge progress achieved with the integration of climate change issues into the curriculum at all levels of education and the development and dissemination of tailored teaching materials on climate change. Over 4,000 teachers from each educational level undertook a 60-hour training course to be able to deliver the broad new climate curriculum.<sup>229</sup>

<sup>227</sup> SWEDES (2016)

<sup>228</sup> <https://link.springer.com/article/10.1007/s10113-017-1248-8>

<sup>229</sup> [https://www.unclearn.org/sites/default/files/estrategia\\_nacional\\_para\\_fortalecer\\_los\\_recursos\\_humanos\\_republica\\_dominicana\\_08\\_2012\\_0.pdf](https://www.unclearn.org/sites/default/files/estrategia_nacional_para_fortalecer_los_recursos_humanos_republica_dominicana_08_2012_0.pdf)

<sup>230</sup> Wals, A. E. J. (2012)

## Empowering learners to be part of the solution

A key part of ESD learning is about building students' understanding of the causes, nature and effects of global and local sustainable developments challenges. But crucially it must also be about fostering a range of competencies and skills to enable learners to contribute proactively to solving them. Rather than just presenting problems, ESD must allow and encourage learners to be part of the solution.

The long-term health of the environment will depend on the public's interest in and ability to protect the natural world. Dozens of peer-reviewed articles have found that learning about the environment has positive civic outcomes, such as instilling a sense of personal responsibility and motivation to address community and environmental issues.<sup>231</sup>

This active fostering of environmental stewardship is exemplified by the U.S. states of Maryland, Pennsylvania and Virginia and the District of Columbia that border the internationally important Chesapeake Bay. Since 2008, the Bay Program has pursued the goal of providing students with three Meaningful Watershed Educational Experiences (MWEEs) to ensure students graduate with the knowledge and skills to act responsibly to protect and restore the fragile local Chesapeake watersheds in which they live. Roughly 46,000 learners take part annually in watershed restoration activities such as re-establishing oyster beds and replanting river banks. Data collected by students on water quality, agricultural run-off and biodiversity helps local agencies monitor the health of the Bay. A multi-year evaluation of the programme has shown that that students were more knowledgeable about the watershed and more likely to take action to protect the Bay after participating.<sup>232</sup>

In similar ways, Costa Rica is working intensively with schools in and around its national parks on fostering stewardship, and Guyana is using ESD principles to help build awareness of unsustainable practices such as illegal logging, illegal mining and overfishing.<sup>233</sup>

Undergraduate students in the UAE have built a programme that monitors coastal shores to identify algal blooms and determine necessary responses.<sup>234</sup>

A South African initiative is linking the curriculum to practical actions such as adopting recycling systems and water harvesting in schools, using alternative energy sources, cleaning up public spaces, and creating indigenous gardens. Participating schools report increased environmental awareness and improved sustainability practices at school and in homes.<sup>235</sup>

## CONCLUSION

Ministries, education authorities, schools, universities and other places of learning should continue to orient themselves towards reflecting the broad nature of the societies in which they are embedded. This can be achieved through decentralising a certain portion of the curriculum to locally-based topics and challenges, including elements of relevant local history and knowledge and ensuring marginalised views and minority perspectives are included. In schools and communities around the globe young people are increasingly driving positive change, especially with regard to the plastics crisis, climate change and social justice issues.<sup>236</sup> Through efforts to integrate local culture, connect theory with practice, and offer practical ways that learners can be a part of the solution, ESD can truly catalyse and support these efforts. The natural world and our societies have just as much to gain from this increasing sustainability and social literacy as the learners themselves.



## FURTHER READING:

- Review of education for sustainable development policies from a cultural diversity and intercultural dialogue perspective: identifying opportunities for future action: <http://unesdoc.unesco.org/images/0021/002117/211750e.pdf>
- UIL policy brief 8, Community-based learning for sustainable development: <http://unesdoc.unesco.org/images/0024/002475/247569e.pdf>

<sup>231</sup> [https://cdn.naaee.org/sites/default/files/eeworks/files/k-12\\_student\\_key\\_findings.pdf](https://cdn.naaee.org/sites/default/files/eeworks/files/k-12_student_key_findings.pdf)

<sup>232</sup> [https://www.chesapeakebay.net/indicators/indicator/education\\_and\\_interpretation](https://www.chesapeakebay.net/indicators/indicator/education_and_interpretation)

<sup>233</sup> <http://education.gov.gy/web/index.php/allied-arts-unit/item/2436-education-for-sustainable-development?showall=&start=1>

<sup>234</sup> <https://www.khaleejtimes.com/nation/abu-dhabi/uae-space-agency-contributes-to-sustainable-development-goals>

<sup>235</sup> UNESCO (2014)

<sup>236</sup> <http://www.chrispackham.co.uk/a-peoples-manifesto-for-wildlife>

## 10. MONITORING AND EVALUATION OF ESD

Educational assessment, monitoring and evaluation has expanded rapidly in recent decades due to the increasing demand for accountability around educational outcomes from governments, the general public and international donors. The popularity and use of international testing schemes such as PISA (the Programme for International Student Assessment) has also increased general awareness.<sup>237</sup> But, while effective monitoring and evaluation (M&E) of policy and practice can have widespread benefits, it is often challenging to implement. ESD has a number of features that make evaluating its outcomes, effects and impacts even harder. Perhaps as a result, to date there has been only patchy and often limited use of monitoring tools to assess the quality of ESD programmes, the extent of their implementation, and the ESD learning results they have achieved.<sup>238</sup>

It is therefore an area of ESD that has wide divergence among different countries; some states have only basic mapping (if any), many are in the early trial phases of implementation, and only a few have more comprehensive plans, projects and methodologies in place.

### ‘That which is measured improves’

Undoubtedly this situation of low levels of M&E needs to change in order to ensure that the evidence-base for ESD continues to grow and further improvements can be made. It is important to emphasise the driving reason for monitoring ESD in the first place: to gain information so that good decisions can be made about policies, teaching and learning processes, institutional support, and allocation of resources. These, in turn, can lead to better

ESD teaching, learning and practices and, ideally, more widespread sustainable knowledge and behaviour.<sup>239</sup>

In their most conventional form, ESD monitoring and assessment frameworks can help to ensure the on-going relevance and effectiveness of ESD efforts, guiding planning programmes and increasing understanding of progress and highlighting areas for improvement in ESD. But if communities of learning are effectively engaged through participatory evaluative frameworks, these processes also have the potential to build knowledge, enthusiasm and ownership for ESD and its impacts among stakeholders.<sup>240</sup>

### Questions and challenges for monitoring and evaluation in ESD

Despite being a crucial task, many unresolved questions and challenges to formulating appropriate frameworks, assessments and indicators to measure the many different aspects of ESD remain. For example: given that subjects such as biology, geoscience and history contain aspects of ESD learning and practice (such as climate change education or intergenerational justice) but are not necessarily – by themselves – a good proxy for ESD, how can learning outcomes such as test scores best demonstrate ESD knowledge and skills?

Are exam or test scores even an appropriate method of assessing the diverse social competencies, skills and personality traits that ESD tries to impart? Lower test scores may suggest that changes are needed to inputs, but do not provide clues as to how to make those changes. Improving test scores has little to do with real ESD learning or advancing sustainable development. Some people also wonder whether assessments are contributing to the problem that ESD is intended to tackle by promoting teaching to the test, competition and entrenched conventional thinking.

<sup>237</sup> Didham and Ofei-Manu (2018)

<sup>238</sup> Buckler and Creech (2014)

<sup>239</sup> Lockhart, A. P. in Leicht, A., Heiss, J., and Byun, W. J., (eds). (2018)

<sup>240</sup> Tilbury (2007)

Other unresolved questions include:

- Are there ways of evaluating the current status of holistic and interdisciplinary ESD learning outcomes without increasing the testing burden on students?
- How can institutions be strengthened and motivated to efficiently and effectively conduct M&E in order to produce more systematic reviews of ESD implementation?
- What are the best methods for determining whether ESD learning processes are leading to sustainability related choices, actions and outcomes?
- What kinds of ESD data, indicators or results are most needed to bolster the case for curriculum and pedagogical reform and for identifying key lessons for further mainstreaming?
- How can the components of ESD be synchronised with the domains of international assessment tests such as PISA, whose broadened scope and content could increase the visibility of ESD's contribution to quality education?<sup>241</sup>

### Innovation and progress in ESD monitoring and evaluation

Despite these questions and challenges, there are undoubtedly some areas of innovation and progress in the area of ESD monitoring and evaluation that are worth exploring.

South Africa has developed a strong tradition of monitoring and evaluation in the area of ESD through its National Environmental Education Project for General Education and Training (NEEP-GET). Devised and implemented over a three-year period, it is one of the largest ESD monitoring and evaluation processes ever undertaken. Assessments (including some longitudinal studies) have been undertaken in key areas, such as approaches to in-service professional development, ESD lesson planning, developments in pedagogy, and methods of strengthening active learning programmes, and are providing vital feedback on good practices to the local ESD community.<sup>242</sup>

## DENMARK: interdisciplinary evaluation of ESD learning

In Denmark, the Ministry of Education's efforts to integrate ESD across multiple disciplines and programmes has seen it develop and introduce some innovative cross-silo evaluation methods. As of 2016, students undertake an interdisciplinary science exam at the end of the 9<sup>th</sup> Grade, formulating a science problem related to sustainability and using relevant questions, experiments and arguments from biology, physics, chemistry and geography to unpack and explore the problem, both individually and in small groups. This evaluation method comes at the end of two years of inter-disciplinary science exploration on six focus areas related to ESD (such as sustainable use of natural resources, sustainable energy, technology, human health and intergenerational issues) and goes a long way towards solving the problem of monitoring interdisciplinary ESD learning.<sup>243</sup>

An interesting monitoring innovation in higher education is the existence of rankings and tables that benchmark and measure environmental performance. For example, in the UK, the People & Planet University League is compiled annually by a large independent student campaigning network and comprehensively ranks all higher education institutions according to their environmental and ethical performance.<sup>244</sup>

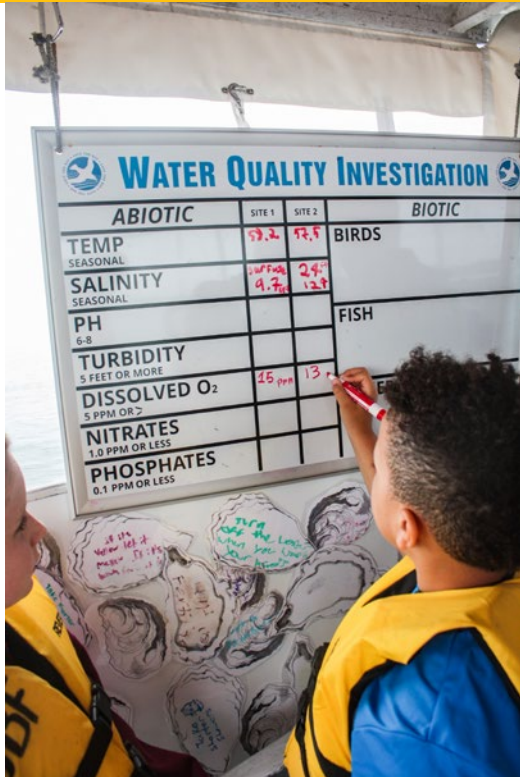
<sup>241</sup> Didham and Ofel-Manu (2018)

<sup>242</sup> UNESCO (2013)

<sup>243</sup> Presentation by Keld Nørgaard, Ministry of Education, at WFC International ESD conference.

<sup>244</sup> <https://peopleandplanet.org/university-league>





Measurement and evaluation must improve so that the evidence-base for ESD continues to grow and further improvements can be made



## International learning assessments

International assessments of learning attainments such as PISA's triennial international survey of half a million 15-year-olds in 72 countries are beginning to incorporate aspects of ESD.<sup>245</sup> The 2006 assessment focused on science literacy and, among other things, compiled information about the inclusion of environmental science topics in the school curriculum. PISA found that 98% of students in OECD countries attend schools in which broad environment/sustainability topics are taught (although this figure varied much more in non-OECD countries).<sup>246</sup>

In the 2018 PISA assessment, young people's 'global competence', including intercultural knowledge and analytical and critical thinking, were explored for the first time. Skills such as the ability to interact respectfully, empathy and flexibility, as well as attitudes such as openness towards people from other cultures, global-mindedness and responsibility were assessed through self-reported data in the student questionnaire. In this way the test is offering "the first, comprehensive overview of education systems' success in equipping young people to support the development of peaceful, diverse communities."<sup>247</sup>

Other international learning assessments like the International Civics and Citizenship Study (ICCS) across 38 countries has found a positive correlation between citizenship education with engagement of students in active citizenship and sustainability related choices, behaviour and actions.<sup>248</sup>

<sup>245</sup> <http://www.oecd.org/pisa/aboutpisa/>

<sup>246</sup> Buckler, C., & Creech, H. (2014)

<sup>247</sup> OECD (2016); UNESCO (2017)

<sup>248</sup> <http://iccs.iea.nl>

## CONCLUSION: MEASURING WHAT MATTERS

There are many ways of assessing learning outcomes. These can range from large-scale national assessments linked to educational priorities, to contextual school-level assessments to improve the delivery of a new pedagogical practice. They can be subject-specific or even deal with the level of an individual learner. Given the variety of learning objectives and competencies ESD entails, a range of methods is likely to be required to assess learning accurately. Much of what is possible will depend on the characteristics of the education system and on how, where and by whom ESD is delivered.<sup>249</sup>

But whatever methodologies are chosen there are many good reasons for undertaking them, from renewal and improvement, to identifying trends, evaluating effectiveness, promoting accountability and transparency and increasing political will. We should heed the advice of the Nobel economics laureate Joseph Stiglitz who noted, “what we measure shapes what we collectively pursue – and what we pursue determines what we measure”. Does a school system exist to ensure that pupils in its jurisdiction pass their final exams? Or is that only one part of a public service infrastructure that is dedicated to creating adaptable, skilled, confident citizens? If ESD is not measured and assessed effectively, its clear contribution to this latter aim could be overlooked and, ultimately, it might not remain or grow into a political priority.

While some of the hugely important dynamic, emergent aspects of ESD will probably go on being mostly unmeasured, it is important that aspects that can be assessed start to be integrated into comprehensive national monitoring, evaluation and accountability mechanisms.<sup>250</sup> This should ensure that clear indicators and specific, measurable, short and long-term targets are established at the start of

each project and that appropriate tools for data collection are developed. Findings and results need to be communicated and distributed effectively.<sup>251</sup> This will allow ESD leadership, innovation and good practice taken by government actors and other stakeholders to be properly understood, documented and replicated.

The time seems to be ripe. According to a survey UNESCO conducted in 2016, over 91% of the responding Member States reported on the increase of their emphasis on ESD in the policy arena.<sup>252</sup> As the evidence base expands, policies supporting learning-based transitions towards sustainability will very likely become stronger and more widespread. This could accelerate curriculum innovation and enable greater adoption of the learning and processes highlighted in this handbook.<sup>253</sup> Those with the means to enhance the monitoring and evaluation of ESD should use this momentum to improve ESD learning, strengthen people’s capacities to contribute to sustainable development and help to ensure ever wider sustainable impacts.



### FURTHER READING:

- Ashley Stepanek Lockhart *Monitoring ESD: lessons learned and ways forward* in: Leicht, A., Heiss, J., and Byun, W. J., (eds). (2018) *Issues and Trends in Education for Sustainable Development*. UNESCO.



<sup>249</sup> UNESCO [2017]

<sup>250</sup> Lockhart, A. P. in Leicht, A., Heiss, J., and Byun, W. J., (eds). [2018]

<sup>251</sup> Didham and Ofei-Manu [2018]

<sup>252</sup> [http://bit.ly/unesco\\_position\\_paper\\_ESD\\_future2r5XTyz](http://bit.ly/unesco_position_paper_ESD_future2r5XTyz)

<sup>253</sup> Wals, A. E. J. [2012]

## 11. FINANCING QUALITY EDUCATION AND ESD

Quality, inclusive and sustainable education has been shown to be the foundation for countries to prosper economically, environmentally and socially; but it cannot succeed without adequate financing.<sup>254</sup> Progress towards implementing quality education has often been slow and many countries – particularly low and middle-income countries – are experiencing a learning crisis. They not only lack sufficient resources to properly fund education, but their learning standards are decades behind high-income countries. Although it is clear that education is an investment with huge returns, financial support for education is not keeping pace with international aid spending in other areas, such as health.

According to the 2016 Global Education Monitoring Report, the world will be 50 years late in achieving its global education commitments. On current trends, universal primary completion will be achieved in 2042; universal lower secondary completion in 2059; and universal upper secondary completion in 2084. The poorest countries are set to achieve universal primary education over 100 years later than the richest.<sup>255</sup> The total annual cost of achieving universal education (pre- primary, primary and secondary education) in low and middle-income countries is projected to increase to US\$340 billion by 2030.<sup>256</sup>

But there are both domestic and international mechanisms and recommendations in place that could turn this picture around. For ESD, recognised as a particularly important dimension of quality education, there are already international examples of good practice where specific funding has been allocated.

### Improving public financing of quality education

Efforts to close the funding gap must start with an increase in domestic funding to education that is appropriate to the country context. While domestic financing has increased in recent years, education is still not a priority in many national budgets and remains underfunded and fragmented in low-income countries. As a share of government spending, expenditure on education has changed little since 1999.<sup>257</sup>

The 2015 Incheon Declaration forms part of the international framework for financing the SDGs, including SDG 4 on quality education.<sup>258</sup> The Incheon Declaration recognises that quality education cannot be realised without a significant and well-targeted increase in financing. It recommends national governments allocate 4 – 6% of their gross domestic product (GDP) and/or at least 15 – 20% of their total public expenditure on education, with a focus on basic education.<sup>259</sup>

A number of governments have shown significant commitment in this area. Between 2005 and 2014, the Government of the Philippines initiated major structural reform in the basic education system and doubled its spending in this area. In 2017, for instance, allocations for the Department of Education were increased by 25%, making education the largest item in the national budget. In 2018, allocations for education increased by another 1.7% to PHP 533.31 billion (US\$10.26 billion).<sup>260</sup>

<sup>254</sup> GEM (2016)

<sup>255</sup> Ibid.

<sup>256</sup> UNESCO (2015) Education for All Global Monitoring Report: Pricing the right to education – the cost of reaching new targets by 2030. UNESCO Policy Paper 18, Paris

<sup>257</sup> The high-level Commission on the Financing of Global Education Opportunities

<sup>258</sup> Alongside e.g. the Addis Ababa Action Agenda of the Third International Conference on Financing for Development 2015

<sup>259</sup> Incheon Declaration (2015)

<sup>260</sup> UNDP Human Development and Indices and Indicators, 2018 Statistical update, page 54 ff

Norway's domestic and international financing of education similarly demonstrates real commitment and leadership. The Government's expenditure as a percentage of GDP is one of the highest among OECD countries at around 6.4% between 2012 and 2017.

In efforts to bolster the economy and combat poverty, the Republic of Korea has spent an average of 5.1% of its GDP on education between 2012 and 2017.

Across the richer industrialised OECD countries, governments spent an average of 5% of their GDP on primary to tertiary education in the last five years.<sup>261</sup> Lower-middle-income countries (LMICs) on the other hand will need to reach or exceed the upper end of the Incheon recommendations of 4 – 6% of GDP or 15 – 20% of expenditure if they are to achieve the necessary improvements and will have to rely on both domestic and external funding.<sup>262</sup>

## International donor funding

Alongside domestic funding, a significant increase in levels of development cooperation and donor funding for education is needed, particularly to meet the requirements of low and middle-income countries.<sup>263</sup>

There are a range of multi-stakeholder partnerships attempting to make sure this gap is closed. The Global Partnership for Education (GPE), for example, aims to strengthen education systems in low-income countries with a target of leveraging US\$2 billion of domestic resources and donor funding annually. With developing countries committing US\$110 billion of their national budgets to education, donors have pledged US\$2.3 billion to the GPE fund for the three years 2018–2020.<sup>264</sup> Encouragingly, 33 of the 42 developing country partners the GPE work with have devoted at least 20% of their total public expenditure to education or have committed to further increasing their expenditure towards this goal.<sup>265</sup>

'Education Cannot Wait' is another multilateral partnership fund with a focus on financing education in emergencies and protracted crises covering middle income countries. Established in 2016, it addresses education for refugee children and has invested US\$134.5 million in 19 crisis-affected countries.<sup>266</sup>

Bilateral financing is also a significant source of education funding, with 21 donors contributing funding or technical expertise. Norway, the UK, the U.S., Germany, France, Japan, Austria and the Netherlands are the largest donors alongside the World Bank.<sup>267</sup>

Partnerships between developing countries, international finance institutes and public and private donors to mobilise financial resources for low and middle-income countries are also starting to make headway. The International Finance Facility for Education (IFFEd) combines multilateral financing with strong country commitments to prioritise education within national budgeting. The aim here is to move countries away from dependence on grants towards longer-term financing.<sup>268</sup> In the first round of funding, donor countries will provide IFFEd with about US\$2 billion in guarantees, which will then be leveraged to create up to about US\$8 billion in new financing. Combining this financing with grant funding, IFFEd would multiply traditional aid more than four times, double existing investments from banks, and help mobilise more than new US\$10 billion for education in its first few years of operation.

<sup>261</sup> OECD (2018)

<sup>262</sup> The Learning Generation - Investing in Education for a Changing World, The International Commission on Financing Global Education Opportunity

<sup>263</sup> Global Education for All - Submission for HLPF 2016

<sup>264</sup> <https://www.globalpartnership.org/blog/what-happened-gpe-financing-conference-dakar>

<sup>265</sup> Global Partnership for Education, Results Report 2018

<sup>266</sup> GEM Report (2018)

<sup>267</sup> Economic and Social Council, Progress towards the Sustainable Development Goals Report of the Secretary-General, 2016 session 24 July 2015-27 July 2016

<sup>268</sup> Commission on the Financing of Global Education Opportunities (2016)



*In our fast-changing world, we cannot accept 250 million children failing to learn even the most basic skills. In the coming decade, some one billion young people will enter the workforce. They all need education, so they can help build a world of peace, prosperity, dignity and opportunity for all. That is why the proposed new International Finance Facility for Education can be so important.*

**Antonio Guterres**  
Secretary-General, United Nations

## Funding for ESD

There are a variety of factors that make securing more tailored or specific funding for ESD a challenge. It is generally more difficult to receive financial support for ESD-related projects and initiatives compared to core educational subjects (e.g. science, reading, and mathematics).<sup>269</sup> It is even more difficult to get resources for promoting 'wide', horizontal or transversal topics that span the curriculum. If ESD is being implemented systemically across disciplines or with a whole school approach (as it should be) it is likely to fall under multiple budgets and jurisdictions without being the core focus of any particular department. Conversely, if it is anchored in more 'restricted' themes such as climate change or energy resources in order to be financed, it is likely to lose some of its holistic or interdisciplinary value.

Despite these challenges there are jurisdictions that have introduced more targeted financing for ESD-aligned pedagogies, training and whole system approaches.

The updating of Italy's 2017 'Strategy on ESD' included 20 actions in four macro areas, many of which had specific budgets. For example, €5 million was allocated to start the process of ensuring that all the Ministry of Education buildings, including schools and universities,

were being operated according to sustainable whole-system principles. Moreover, €20 million was assigned for the training of teachers and staff in awareness and capacity building in ESD.<sup>270</sup>

Scotland's continued promotion of the outdoor learning component of ESD has seen the injection of an additional £860,000 (€972,000) into the 2018 education budget to encourage and support greater use of outdoor learning in early years education.<sup>271</sup> Voters in the U.S. state of Oregon also recently approved an innovative use of US\$22 million in lottery funds each year to make outdoor learning accessible to every 5<sup>th</sup>- or 6<sup>th</sup>-grader.<sup>272</sup>

In Cyprus, which has a strong commitment to ESD policy, infrastructure and support systems, the country has made a commitment to spending on education, which at 6.1% of GDP is well above the EU average. A significant proportion of the education budget has been spent on teacher salaries and training including in ESD.

The Canadian province of Manitoba, meanwhile, gives out ESD grants of about C\$2,000 each year to schools for a wide variety of sustainability-inspired initiatives that creatively benefit the students, school and local community.<sup>273</sup>

<sup>269</sup> SWEDES (2016)

<sup>270</sup> <https://weecnetwork.org/strategy-esd-commitment-italian-institutions/>

<sup>271</sup> <https://www.scotsman.com/news/opinion/caroline-freeman-and-nicola-simpson-a-breath-of-fresh-air-for-kids-at-scots-nurseries-1-4759494>

<sup>272</sup> <http://grayff.org/outdoor-school-for-everyone/>

<sup>273</sup> <https://www.edu.gov.mb.ca/k12/esd/grant/recipients-18.html>



## Cost effective

Part of the reason ESD initiatives are increasingly attractive is that, alongside their many other benefits, they can save – or even generate – significant sums of money. As we saw in chapter 1, schools and education institutions engaged in sustainable actions and behaviour (for example reducing their environmental footprint, undertaking energy efficiency measures and installing renewable energy) can save 14% on energy costs and use 32% water. Energy efficient buildings and design can similarly save school systems millions of dollars.<sup>274 275</sup>

Creating learning rich environments in school playgrounds can often be very cost effective with simple adventure playgrounds and mud kitchens coming in at less than €2,000 to implement.<sup>276</sup> Taking learning into nature, arguably the world's best playground and science laboratory, often comes for free!

## CONCLUSION

Whether for ESD specifically or more generally for quality education, there is a strong need for timely, consistent public expenditure on education. The financing of education for all children remains achievable, but it needs more engagement, particularly in low- and middle-income countries. It is clearer than ever that is one of the best investments the world can make. While aid to education has fallen as a share of total aid since 2009, in 2016 it reached its highest levels since 2002, amounting to US\$13.4 billion.<sup>277</sup> If international donors were to meet their commitments to allocate 0.7% of their gross national income to aid and allocate an additional 10% of their aid portfolio to basic and secondary education, the funding gap could be filled.<sup>278 279</sup> This move couldn't be more important; investment in quality education and ESD is an investment in the performance of present and future generations. It not only greatly benefits learners themselves but has benefits throughout society, helping governments solve multiple problems.



Consistent public expenditure on education reaps huge benefits across society

<sup>274</sup> <http://www.lessco2.org.uk/councils>

<sup>275</sup> <https://www.usgbc.org/resources/greening-america039s-schools-costs-and-benefits>

<sup>276</sup> <http://outdoorplayandlearning.org.uk/home/for-schools/research/>

<sup>277</sup> GEM Report (2018)

<sup>278</sup> Policy Paper 36 – Aid to education: a return to growth?

<sup>279</sup> GEM Report (2015)

## 12. CONNECTING ESD TO 21<sup>ST</sup> CENTURY SKILLS, JOBS AND A SUSTAINABLE ECONOMY

There is a general acknowledgement that merely increasing the understanding of ESD and related issues is not sufficient to effect lasting change. Rather, it is necessary to develop the competencies that enable real change to happen at different levels, and among all peoples and regions of the world. To reach its full potential as a powerful force for societal good and continue to remain relevant beyond the years of formal education, ESD must forge deeper links to the world of work and the burgeoning transition to sustainable economies and societies.

The good news is that there are already several important global drivers making this happen. Through technical and vocational education and training, the development of 21<sup>st</sup> century skills, and social and emotional learning attributes, ESD is increasing the capacities of individuals, communities and societies to adapt to the growing change, complexity and uncertainty that we collectively face.

Young people have the strongest motivation of all to create a better, more just, green future. At the same time, youth are also often best positioned to change, redress, reconfigure and renew the social systems which puts that at risk.<sup>280</sup> Young people already represent 42% of the world's population.<sup>281</sup> It is high time that this huge demographic is given the tools and opportunities to push for and create a better world.



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*Empowering young people to care for the world they inherit is the responsibility of every generation. Education for Sustainable Development is a powerful tool that gives young people, their peers and communities the knowledge and confidence to act on their beliefs, be part of something bigger and make a real difference. Politics has the responsibility of providing the conditions to make sustainable living a reality. This is especially the case when it comes to education; one of the most transformative forces for good that we have. As an activist I know how important good policies are to safeguard the rights of humans, animals and the earth we all inhabit. This handbook offers insights from around the world on how sustainable education can be implemented successfully to build a better future for all.*

**Jane Goodall, PhD, DBE**

Founder - the Jane Goodall Institute and Roots & Shoots  
UN Messenger of Peace  
World Future Honorary Councillor

<sup>280</sup> Leicht, A., Heiss, J., and Byun, W. J., (eds). (2018)

<sup>281</sup> <https://blogs.worldbank.org/opendata/chart-how-worlds-youth-population-changing>

## Lifelong learning

Most people spend the vast majority of their lives outside formal education. There is a growing understanding that ESD can be a lifelong learning process that begins in early childhood and carries on advancing throughout primary and secondary education, through higher education, the development of technical and vocational skills, ongoing workplace training and professional development, culminating in community learning. In this context, quality education and ESD not only instil fundamental competencies, but offer lifelong values and opportunities.<sup>282</sup> These values, competencies and skills – and the opportunities they offer – are increasingly necessary.

In this age of lightning fast innovation, automation and disruptive technologies the practice of lifelong learning is crucial; it can help to ensure that people continue to grow and be on the right side of change. Thanks to automation and the forces of globalisation, working life is impermanent and unpredictable with trends suggesting this will continue and even accelerate in coming decades. According to a study by LinkedIn which analysed the career trajectories of 3 million college graduates, young workers now switch jobs, though not necessarily careers, four times in their first ten years after graduation.<sup>283</sup> We are told to expect to switch *careers* five times or more over a lifetime.<sup>284</sup> One of the key roles of education is therefore to create skilled, dynamic and adaptable citizens.

Denmark is one of a number of countries which has developed an education strategy for lifelong learning.<sup>285</sup> Others – primarily in the Asia-Pacific region – have introduced community institutions. While each of these Community Learning Centres (CLCs) is unique and has functions to meet specific local needs, their universal function is to facilitate the establishment of safe and effective lifelong learning environments for multi-generational gatherings and non-formal education in local settings.<sup>286</sup>

As well as the opportunity for everyone to acquire lifelong knowledge and competencies acquired through quality education, workers will need the benefit of flexible learning pathways, and crucially a set of skills that will allow them to succeed.

## 21<sup>st</sup> century skills

There is a growing emphasis worldwide on the need to equip learners with a set of key competencies or essential attributes, also defined as ‘21<sup>st</sup> century skills’, which give learners the opportunity of thriving in education personal development, employment and inclusion in a knowledge society. These include analytical skills, effective communication, collaboration, critical thinking, problem-solving, citizenship and digital literacy. Surveys involving 17 OECD countries, found that there was strong recognition of the relevance of 21<sup>st</sup> century skills and competences and that most countries or regions now include them in their regulations, guidelines or recommendations for compulsory education.<sup>287</sup>

Except for skills related to ICT, most of these key competencies have been valued for a long time. What is relatively new is the increased attention paid to the application of knowledge and skills to ‘real life situations’ as well as to the labour market demands arising from the changes in society due to the increasingly interconnected global economy and the information age.<sup>288</sup>

In addition to 21<sup>st</sup> century skills, there are number of non-cognitive attributes, qualities and behaviours that are needed for life and work in contemporary society. These include time management, integrity, understanding emotions, setting and achieving goals, having a sense of responsibility, and feeling and showing empathy for others. Sometimes referred to as ‘soft’ or ‘employability’ skills, they are part of social and emotional learning (SEL) and are increasingly valued by employers from both the private sector and civil society.

<sup>282</sup> Buckler and Creech, 2014

<sup>283</sup> <http://money.cnn.com/2016/04/12/news/economy/millennials-change-jobs-frequently/index.html>

<sup>284</sup> <https://www.ft.com/content/0151d2fe-868a-11e7-8bb1-5ba57d47ef7>

<sup>285</sup> <http://eng.uvm.dk/themes-and-projects/education-and-skills-upgrading-for-all/objectives-for-lifelong-learning>

<sup>286</sup> Didham and Ofei-Manu [2018]

<sup>287</sup> Ananiadou, K. & Claro, M. [2009]

<sup>288</sup> Amadio, M. [2013]



The good news is that 21<sup>st</sup> century skills and SEL attributes are a core part of what the emerging pedagogies and learning approaches of quality education and ESD are trying to engender in learners. They not only help individuals to thrive but will be a crucial advantage to communities and populations grappling with complex change, creating the sustainable economies we so urgently need, and advancing solutions such as the SDGs.<sup>289</sup>

### Advancing a sustainable economy

As education policy experts like Aaron Benavot have noted, ESD should challenge policy makers to go beyond its links to educational content to consider how education can contribute to greater sustainability in the economic, labour market and industrial sectors.<sup>290</sup>

There is a strong positive feedback loop between education and innovation as a prime mover of sustainable economic activity in green economies, where innovation, green skills and the capacity to cope with change will be significant drivers of each economic sector.

A major 2018 report released by the Global Commission on the Economy and Climate has found that we are significantly underestimating the benefits of creating

a cleaner, climate-smart sustainable economy. Bold climate action could generate more than 65 million new low-carbon jobs and deliver at least US\$26 trillion in economic benefits through to 2030, compared with business-as-usual. The report identifies five key areas of green opportunities – developing clean energy systems, improving urban planning, shifting to sustainable agriculture, smart water management and decarbonising industry – all of which have a strong connection to ESD.<sup>291</sup>

Half of the global workforce (the equivalent of 1.5 billion people) will be affected by the transition to a greener economy. Tens of millions of jobs have already been created by the transformation to a greener economy; for example, the renewable energy sector now employs over 7.7 million people worldwide, more than doubling the number of jobs from 2006-2010.<sup>292</sup>

These figures underline both the huge opportunity that decarbonising our energy system presents, as well as the critical importance of continuing to adequately support these sectors by encouraging investment, creating jobs and crucially ensuring the new workforce has the right kinds of skills and capabilities to excel in them.

<sup>289</sup> <https://www.salzburgglobal.org/multi-year-series/education.html?pagelid=8403>

<sup>290</sup> Benavot, A. (2014)

<sup>291</sup> See: Unlocking the Inclusive Growth Story of the 21<sup>st</sup> Century <https://newclimateeconomy.report/2018/>

<sup>292</sup> YouthXchange: green skills and lifestyles guidebook <http://unesdoc.unesco.org/images/0024/002456/245646e.pdf>





## CASE STUDY

### Scotland: ESD's key role in the transition to a low carbon economy

Countries like Scotland are making an explicit link between its transition towards building a high-skilled, low carbon economy and its focus on ESD and STEM education through the Government's 'Curriculum for Excellence' and 'Learning for Sustainability' framework. As part of its overarching strategic objectives to be a 'greener' and 'fairer' nation, sustainable development has become one of the Scottish Government's key national priorities. Its revised National Performance Framework now links all aspects of Scottish Government policy with the SDGs – and has "wellbeing, sustainable and inclusive economic growth and kindness" at its heart.<sup>293</sup> It has set ambitious targets for reductions in greenhouse gas emissions through the Climate Change (Scotland) Act 2009. Low carbon industries in Scotland generated £11 billion (US\$14 billion) in turnover and supported 43,500 jobs in 2014.<sup>294</sup> In these processes, the Government has emphasised the importance of societal change towards a sustainable future and highlighted the role of ESD in informing and driving that process.<sup>295</sup>

ESD can play an important role in the transition away from the unsustainable production and consumption patterns of some current economic structures towards the emerging sustainable circular economy models of the future. To be a part of this transition, ESD will need to continue to encourage learners to explore values such as sufficiency, innovation and sustainability, which can provide an alternative to consumer society.<sup>296</sup>

### Technical and vocational education and training (TVET)

Perhaps one of the most visible and promising ways that ESD is helping to make an impact in the areas of innovation, changing labour markets and creating a sustainable economy is technical and vocational education and training. TVET – or education for the world of work – refers to the range of formal and non-formal life skills programmes for young people and adults. It includes higher skills training, apprenticeships and workplace skills development, and efforts to cater to the needs of small- and medium-sized enterprises and communities.<sup>297</sup>

<sup>293</sup> <http://nationalperformance.gov.scot/>

<sup>294</sup> <https://www.gov.scot/news/low-carbon-industries-worth-almost-gbp-11-bn/>

<sup>295</sup> <http://www.unesco.org.uk/wp-content/uploads/2015/03/Brief-9-ESD-March-2013.pdf>

<sup>296</sup> [http://bit.ly/unesco\\_position\\_paper\\_ESD\\_future2r5XTyz](http://bit.ly/unesco_position_paper_ESD_future2r5XTyz)

<sup>297</sup> Buckler and Creech [2014]



Vocational schools are responding to the demand for a workforce capable of operating well in a modern, skilled economy by reorienting their curricula.

Individual industry sectors (construction, tourism, agriculture and others) are working with government and TVET institutions to define and address needs specific to their industry.<sup>298</sup> The integration of ESD in TVET is stimulating new ways of thinking and innovative responses to sustainable development, low-carbon green practices, poverty reduction and support for socio-economic development.<sup>299</sup>

Kenya is reforming the curriculum of its vocational polytechnic schools to develop training that supports sustainable livelihoods. New programmes and initiatives have been introduced by the Kenyan Ministry of Education, including the creation of demonstration projects like tree nurseries, solid-waste management systems, and solar/bio-gas energy generators, as well as service learning in which students do peer-to-peer education in their communities on health and community clean-ups.

In the state of North Rhine Westphalia in Germany, the Vocational Training Institute of the Construction Industry has made sustainable development compulsory for every apprentice, trainer, expert and company in its membership. It is now mandatory across the industry to learn about how to identify, source and install new, more efficient materials to save energy.

Post-secondary institutions in British Columbia, Canada, have developed TVET training programmes in renewable energy technologies and more environmentally friendly operations. TVET that incorporates sustainable development is also advancing in Peru through a network of 19 institutions doing work linked with ESD.<sup>301</sup>

These efforts – and the many other emerging TVET good practices and models around the world – will require continued scaling up and mainstreaming.

## CASE STUDY

### TVET for a green economy in South Africa

The Central Johannesburg College (CJC) in South Africa is training youth towards artisan opportunities in the green industries. Training of the first group of twenty youths in solar geyser [hot water systems] installation started in May 2010 at the Alexandra Campus, spurred by the Department of Minerals and Energy's project to install one million household solar geysers by 2014. Training has been developed to provide innovative solutions to the needs of the workforce by promoting green careers and innovation in the vocational opportunities available to young trainees. Green training includes the installation of photovoltaic technology, solar geysers, water harvesting, low energy lighting and cooling systems.<sup>300</sup>

### ESD and the private sector

Vocational training is not the only area of interest to the private sector in which ESD is well positioned to play a key role. There is an increasing need in the corporate and industrial sectors to address real-life sustainability and supply chain challenges. Many industries and businesses are actively looking for new models of learning, training and capacity building that can lead to innovation in solving these problems.

At the same time, jobs are also being created in new industries that focus directly on environmental technologies, renewable energy systems, pollution control and remediation, and other types of 'green' services. Employment opportunities are opening up in traditional sectors such as agriculture, construction, manufacturing, hospitality, and financial services where actions need to become more socially responsible and environmentally friendly.

ESD's competence-based pedagogies, links with technical training, and 21<sup>st</sup> century skills are dovetailing with the private sector's need for a workforce of creative problem-solvers. In this era of widespread corporate social responsibility (CSR) and 'triple bottom line' accounting (where benefits to *people* and *planet* are aimed for and measured alongside *profit*), solutions that involve innovative thinking on sustainable development issues are in high demand.

<sup>298</sup> Ibid.

<sup>299</sup> Wols, A. E. J. (2012)

<sup>300</sup> Ibid.

<sup>301</sup> Buckler and Creech (2014)



Half of the global workforce will be affected by the transition to a greener economy. Investment in training is crucial

Some of the incentives for companies to undertake ethical, 'greening' or CSR activities undoubtedly come from consumers who are ever more concerned about the ethics of the products they purchase. But changes in consumer demand is only one factor and demand from an emerging workforce also plays an important role. CSR programmes have become a major recruitment and retention tool, especially within the competitive graduate student market.<sup>302</sup> Research shows that young millennials are opting to work for employers committed to sustainable values and sound ethics, with 62% wanting to work for a company that makes a positive impact.<sup>303</sup>

Governments, education ministries and other stakeholders can assist this strong desire for ethical and sustainable employment by doing more to highlight the opportunities and career paths that are now increasingly available.

For example, the Maryland Association for Outdoor and Environmental Education (MAEOE) organises a large annual youth summit that not only showcases local environmental programmes and resource providers but brings learners together with many local employers from the conservation, forestry, agriculture and green economy sectors. Every school in the state of Maryland is invited and many send whole year groups along.<sup>304</sup>

In a similar vein, the education leaders in Manitoba, Canada, have published a 'Guide to Green Jobs and Sustainable Careers' brochure and web-resource with the aim of improving education and career opportunities in a green economy.<sup>305</sup>

<sup>302</sup> Bhattacharya, C.B.; Sen, Sankar; Korschun, Daniel (2008). "Using Corporate Social Responsibility to Win the War for Talent". 49 [2]. MIT Sloan Management Review: 37-44

<sup>303</sup> <https://www.theguardian.com/sustainable-business/2015/may/05/millennials-employment-employers-values-ethics-jobs>

<sup>304</sup> <https://maeoe.org/green-schools-and-green-centers/youth-summit-2018>

<sup>305</sup> [https://www.edu.gov.mb.ca/k12/esd/pdfs/green\\_jobs.pdf](https://www.edu.gov.mb.ca/k12/esd/pdfs/green_jobs.pdf)

## CONCLUSION:

There is now strong and growing evidence to show that ESD can be a vital force in creating the flexible, innovative, problem-solving workforce that will be able to respond to the varied challenges of automation, climate change, disaster risk management and sustainable production and consumption. Indeed, the very nature of many sustainability challenges demand solutions and forms of learning that – like the best forms of ESD – are integrative, exploratory, creative and collaborative.

To meet these challenges, and the potential opportunities they present, governments are recognising that there is a need to invest in training, education and green programmes, particularly in the adoption, development and maintenance of STEM skills geared towards building sustainable societies. One of the major requirements will be for more teachers capable of integrating ESD into their teaching and training. It also calls for the development of effective mechanisms to link educational programmes, particularly through TVET, to the sustainable labour market.

Despite the hurdles and challenges outlined in this handbook, the need for ESD to be strengthened and promoted at all levels and in all educational settings is absolutely clear. It has the potential to change the way we learn and improve the quality of life for people across the globe. Together we must fight hard to ensure that it reaches every learner, instilling the values of peace, justice, equality, human rights and a genuine connection to the living world that sustains us all.



## FURTHER READING:

- ESD and TVET: Promoting Skills for Sustainable Development <http://unesdoc.unesco.org/images/0021/002162/216269e.pdf>
- YouthXchange: green skills and lifestyles guidebook <http://unesdoc.unesco.org/images/0024/002456/245646e.pdf>

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## ACRONYMS

<b>ASPnet</b>	Associated Schools Programme Network
<b>CCE</b>	Climate Change Education
<b>CCESD</b>	Climate Change Education for Sustainable Development
<b>CLC</b>	Community Learning Centre
<b>DESD</b>	Decade of Education for Sustainable Development
<b>DRR</b>	Disaster Risk Reduction
<b>EE</b>	Environmental Education
<b>ESD</b>	Education for Sustainable Development
<b>GAP</b>	Global Action Programme
<b>GCED</b>	Global Citizenship Education
<b>GHN</b>	Gross National Happiness
<b>IFFED</b>	International Finance Facility for Education
<b>M&amp;E</b>	Monitoring and evaluation
<b>MOOCs</b>	Massive Open Online Courses
<b>NGO</b>	Non-governmental organisation
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PISA</b>	Programme for International Student Assessment
<b>RCE</b>	Regional Centre of Expertise
<b>SCP</b>	Sustainable consumption and production
<b>SD</b>	Sustainable Development
<b>SDGs</b>	Sustainable Development Goals
<b>SIDS</b>	Small Island Developing States
<b>SWEDESD</b>	Swedish International Centre of Education for Sustainable Development
<b>STEM</b>	Science, Technology, Engineering and Mathematics
<b>TEI</b>	Teacher Education Institution
<b>TLM</b>	Teacher Learning Method
<b>TVET</b>	Technical and vocational education and training
<b>UAE</b>	United Arab Emirates
<b>UNECE</b>	United Nations Economic Commission for Europe
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation







The World Future Council (WFC) works to pass on a healthy planet and fair societies to our children and grandchildren. To achieve this, we focus on identifying and spreading effective, future-just policy solutions and promote their implementation worldwide. The Council consists of 50 eminent global change-makers from governments, parliaments, civil societies, academia, the arts and the business world. Jakob von Uexkull, the Founder of the Alternative Nobel Prize, launched the World Future Council in 2007. We are an independent, non-profit organisation under German law and finance our activities from donations.

#### **World Future Council**

Dorotheenstraße 15  
22301 Hamburg, Germany  
Tel: +49 40 3070914-0  
Fax: +49 40 3070914-14  
Email: [info@worldfuturecouncil.org](mailto:info@worldfuturecouncil.org)  
[www.worldfuturecouncil.org](http://www.worldfuturecouncil.org)



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**Jakob von Uexkull**

Founder of the World Future Council and of the Right Livelihood Award



*The Environmental Foundation Michael Otto is dedicated to advancing forward-looking perspectives in environmental protection and nature conservation as well as sustainable development. Education for sustainable development is one of the driving forces we support to contribute to a societal change towards sustainability. This handbook is a comprehensive guide for all stakeholders who are dedicated to building just societies and to preserve an environment and nature worth living in for future generations.*

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