Shaping the Future We Want

UN Decade of Education for Sustainable Development (2005-2014)

FINAL REPORT

DESD Monitoring and Evaluation

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Foreword

This Report comes at a critical time as UN Member States prepare to conclude negotiations on the global post-2015 agenda and launch a set of sustainable development goals. Deep economic and social inequalities, environmental degradation, biodiversity loss, disruption caused by natural disasters and climate change are a litmus test for the global community. More than ever, this is a time when education can – and must – play a decisive role in providing learners across the world with the knowledge, skills and values to discover solutions to today's sustainability challenges. This carries benefit for present and future generations. It is a conviction that brings us together to the World Conference on Education for Sustainable Development in Aïchi-Nagoya in November 2014.

There are many reasons to celebrate as this Final Monitoring and Evaluation of the Decade of Education for Sustainable Development (ESD) sets out to demonstrate. The Decade has activated hundreds of thousands of people to reorient education globally towards a central goal: to learn to live and work sustainably. ESD has spread across all levels and areas of education, in all regions of the world and is widely considered key in supporting sustainable development. International and national strategies dealing with the economic, social and environmental dimensions of sustainable development are beginning to reflect ESD as a crucial component.

ESD has galvanized pedagogical innovation. Education policy, including curricula changes, now promotes learning for sustainable development in many countries – from early childhood learning through to private sector training. Students are gaining direct experience of sustainability through a wide range of school-based "learning by doing" ESD initiatives that have been introduced in a number of countries.

Extensive partnerships and networks – within and between sectors – have been key to the successful accomplishments of the Decade. Children, youth and students have played an important role as agents of change, participating actively in discussions that affect their future, advocating for a transformation in their learning environments and bringing the messages of sustainability and global citizenship home to parents and communities.

Perhaps one of the most significant lessons learned during the Decade is that strong political leadership is instrumental to advancing ESD. But this is still work in progress. Leadership is essential for moving from policy commitments and demonstration projects to full implementation across the curriculum, teaching and operations, whether in formal systems or in non-formal learning and public awareness raising.

The Decade provides a solid base for scaling up our efforts to prepare the citizens of tomorrow to respond to the challenges of today. ESD advances quality education through more innovative ways of teaching and learning and the engagement of all stakeholders.

As a follow up to the Decade, UNESCO has developed a Global Action Programme on ESD, which was endorsed by the UNESCO General Conference in 2013 and will be launched in Nagoya. The Programme aims at scaling up action in ESD in order to accelerate overall progress towards sustainable development, and marks an important contribution to the global post-2015 development agenda.

By analysing achievements, trends and challenges, this Report provides valuable direction for policy-makers, educators, experts and other stakeholders in their ongoing efforts to advance understanding and action on ESD.

I would like to thank all of those involved, from governments and policy-makers to individual teachers and students across the world, for their significant and continued commitment towards ESD and for contributing to the success of the Decade. This continued engagement will ensure the successful implementation of the Global Action Programme, and to fulfilling our vision of a more peaceful, just and sustainable world.

Irina Bokova
Director-General of UNESCO

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Executive summary

The United Nations Decade of Education for Sustainable Development (2005 – 2014) (DESD) aimed at integrating the principles and practices of sustainable development into all aspects of education and learning, to encourage changes in knowledge, values and attitudes with the vision of enabling a more sustainable and just society for all. The mandate of the DESD has energized a vast number of stakeholders – across Member States, UN agencies, the education sector, the private sector and civil society – to work in partnership to reorient education systems towards sustainable development.

This final DESD Global Monitoring and Evaluation Report (GME) provides an assessment of progress towards embedding Education for Sustainable Development (ESD) into education systems and into sustainable development efforts. Building on the findings of the past two DESD GME reports, and based upon Member States' and other stakeholders' assessments of the current state of ESD, this report maps the achievements and challenges of a decade of progress and action on ESD at the global, regional, national and local levels – and within all areas and levels of education.

Accomplishments over the DESD can be seen in a variety of forms, but most notably, ESD's visibility in national policies and international agreements has increased. In many countries, governments are integrating ESD into education to prepare their citizens to address the sustainability challenges that lie ahead. Meanwhile, individuals, schools, institutions of higher education, community-based organizations, international NGOs and the private sector have all joined in the challenge to advance learning towards a broader and deeper understanding and practice of sustainability. A growing number of higher education institutions are applying their teaching and research towards sustainability solutions, particularly within their local communities. In tandem, businesses now recognize the value of having a knowledgeable and skilled workforce that can contribute to developing greener economies. Moreover, positive advances can be seen in early childhood care, even at the earliest stages of education. Investments are being made in both policy and practice to strengthen the capacities of people of all ages and from all walks of life. **There is now an increased recognition at the international policy level that education is essential to the advancement of sustainable development, with many countries committed to continuing to work to advance ESD at the national and local levels.**

A solid foundation has been laid for ESD at the end of the DESD, achieved by raising awareness, influencing policies and generating significant numbers of good practice projects in all areas of education and learning. At the end of 10 years of work, 10 key findings and trends have emerged that will guide ESD into the future:

ESD, an enabler for sustainable development	ESD is galvanizing pedagogical innovation
1. Education systems are addressing sustainability issues 2. Sustainable development agendas and education agendas are converging	6. Whole-institution approaches help practise ESD 7. ESD facilitates interactive, learner-driven pedagogies
Importance of stakeholder engagement for ESD	**ESD has spread across all levels and areas of education**
3. Political leadership has proven instrumental 4. Multi-stakeholder partnerships are particularly effective 5. Local commitments are growing	8. ESD is being integrated into formal education 9. Non-formal and informal ESD is increasing 10. Technical and vocational education and training advances sustainable development

Despite the successes that have been achieved during the DESD, Member States and other stakeholders have indicated considerable challenges remain in realizing the full potential of ESD: the need for further alignment of education and sustainable development sectors; the need for more work towards institutionalizing ESD to ensure strong political support for implementing ESD on a systemic level; and finally, the need for more research, innovation, monitoring and evaluation to develop and prove the effectiveness of ESD good practices. While much has been done to advance the ethos and values of ESD, a full integration of ESD into education systems has yet to take place in most countries.

As the DESD comes to an end, and Education for All (EFA) and the Millennium Development Goals (MDGs) approach the target date in 2015, ESD becomes crucial as a catalyst for a transition in education, teaching, learning and professional development towards more holistic, integrative and critical ways of tackling sustainability issues. The endorsement of the Global Action Programme (GAP) for ESD by UNESCO Member States in 2013 as a follow-up to the DESD will continue to build on the momentum of stakeholders jointly seeking change, innovation and transition towards a shared vision of sustainability.

List of acronyms

AASHE	Association for the Advancement of Sustainability in Higher Education
AASHE-STARS	AASHE Sustainability Tracking Assessment and Rating System
AAU	Association of African Universities
ACCU	Asia-Pacific Cultural Centre for UNESCO
AEETAP	African Environmental Education and Training Action Plan
ALE	Adult Learning and Education
AMCEN	African Ministerial Conference on the Environment
ARIES	Australian Research Institute for Environment and Sustainability
ARIUSA	Alianza de Redes Iberoamericanas de Universidades por la Sustentabilidad y el Ambiente
ASEAN	Association of South-East Asian Nations
ASPnet	Associated Schools Project Network
AuSSI	Australian Sustainable Schools Initiative
CCE	Climate Change Education
CEDEFOP	European Centre for the Development of Technical Training
CEPA	Communications, Education and Public Awareness Program
CLC	Community Learning Centres (Nepal)
CNESDWG	China National ESD Working Group
CODEP	Coping with Desertification Project
CONFINTEA	International Conference on Adult Education
COP	Conference of Parties
CRISTAL	Common References in Sustainable Training in Adult Learning
CSO	Civil Society Organization
CSR	Corporate Social Responsibility
DESD	Decade of Education for Sustainable Development
DRR	Disaster Risk Reduction
ECCE	Early Childhood Care and Education
ECI	Earth Charter International
EE	Environmental Education
EFA	Education for All
EFMD	European Foundation for Management Development
EfS	Education for Sustainability
ELIAS	Environmental Leadership Initiatives for Asian Sustainability
ESD	Education for Sustainable Development
EU	European Union
FAO	Food and Agriculture Organization
GAP	Global Action Programme
GME	Global Monitoring and Evaluation
GTCS	General Teaching Council for Scotland
GUNi	Global University Network for Innovation
GME Q	Global Monitoring and Evaluation Questionnaire
GMR	Global Monitoring Report
GRALE	Global Report on Adult Learning and Education

GRLI	Globally Responsible Leadership Initiative
GSSL	Global Survey on Sustainable Lifestyles
GUPES	Global Universities Partnership on Environment and Sustainability
HEFCE	Higher Education Funding Council for England
HEI	Higher Education Institutions
HESI	Higher Education Sustainability Initiative
HIV and AIDS	Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome
IAC	United Nations Inter-Agency Committee
IAU	International Association of Universities
IBE	International Bureau of Education
ICT	Information and Communication Technology
IEA	International Association for the Evaluation of Educational Achievement
IFC	International Finance Corporation
IGES	Institute for Global Environment Strategies
IIS	International Implementation Scheme
ILO	International Labour Organization
INFEA	Environmental Education, Information, Training (Italy)
ITP	International Training Programme
IUCN	International Union for Conservation of Nature
IN TEI	International Network of Teacher Education
LMTF	Learning Metrics Task Force
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MEEG	Monitoring and Evaluation Expert Group
MESA	Mainstreaming Environment and Sustainability in Africa
MEXT	Ministry of Education (Japan)
MOOC	Mass Open Online Course
MOU	Memorandum of Understanding
MS	Member State
NaDEET	Namib Desert Environmental Education Trust
NGO	Non-Governmental Organization
NUS	National Union of Students (UK)
OECD	Organization for Economic Co-operation and Development
OMEP	Organisation mondiale pour l'éducation préscolaire
OWG	Open Working Group
PISA	Program for International Student Assessment
PRME	Principles for Responsible Management Education
ProSPER.Net	Promotion of Sustainability in Postgraduate Education and Research Network
RCE	Regional Centre of Expertise
SADC	The Southern African Development Community
SADC REEP	SADC Regional Environmental Education Programme
SEAMO	South East Asian Ministers of Education Organization
SD	Sustainable Development
SDC	Swiss Agency for Development and Cooperation
SDGs	Sustainable Development Goals
SIDA	Swedish International Development Cooperation Agency
SME	Small and Medium-sized Enterprises
SMME	Small, Micro and Medium-sized Enterprises

TEI	Teacher Education Institution
TVET	Technical and Vocational Education and Training
UCINS	UNESCO Chair International Network of TEIs Survey
UCLG	United Cities and Local Governments
UIS	UNESCO Institute for Statistics
UK	United Kingdom of Great Britain and Northern Ireland
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	UNESCO International Centre for Technical and Vocational Education and Training
UNFCCC	United Nations Framework Convention on Climate Change
UNGC	UN Global Compact
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
UNLD	United Nations Literacy Decade
UNU	United Nations University
USA	United States of America
WBCSD	World Business Council for Sustainable Development
WHO	World Health Organization
WWF	World Wildlife Fund
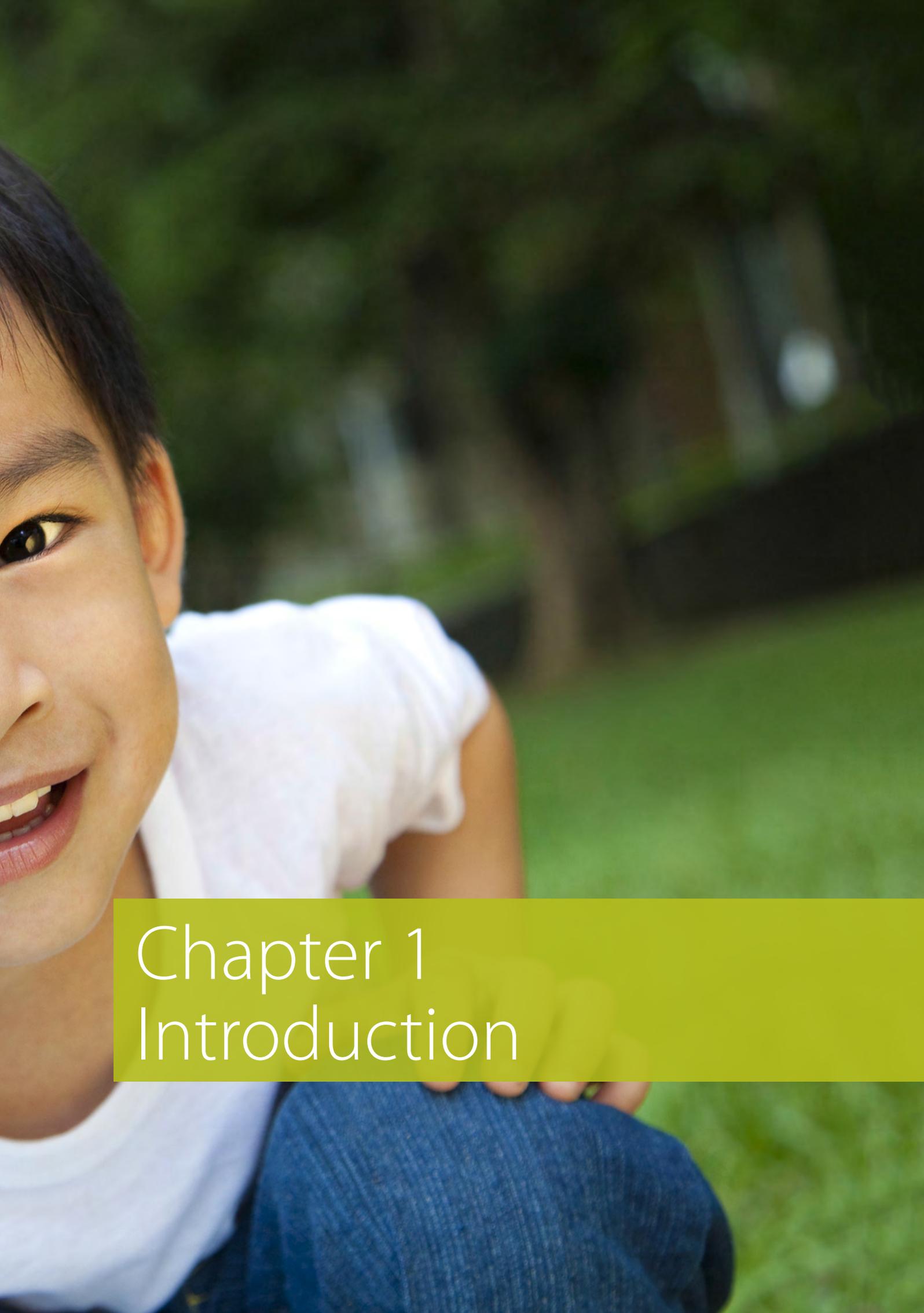
Chapter 1
Introduction

Chapter 1: Introduction

> Education is the most powerful path to sustainability. Economic and technological solutions, political regulations or financial incentives are not enough. We need a fundamental change in the way we think and act.
>
> — Irina Bokova, Director-General of UNESCO (2012)

1.1. Context: ESD and the DESD

The history of ESD links to the 1992 United Nations Conference on Environment and Development (UNCED), where 178 Member States agreed on a framework for action in Agenda 21 – chapter 36, recognizing that education, training and public awareness are critical tools for the transition to sustainable development; and calling for 'reorienting education towards sustainable development' (UN, 1992: paragraph 36). UNESCO was assigned as task manager for chapter 36.

Parallel articles on education, training and public awareness were agreed to in the three Rio Conventions (the UN Framework Convention on Climate Change [UNFCCC], the UN Convention on Biological Diversity [UNCBD] and the UN Convention to Combat Desertification [UNCCD]), with programmes of work agreed to by Member States. Agenda 21 principles and underpinning frameworks continue to guide conceptual thinking and planning for ESD, from the global level through to regional actions and Local Agenda 21 initiatives.

The launch of the DESD in 2005 marked the beginning of 10 years of an explicit global movement towards improving and reorienting education systems towards sustainable development, building on earlier commitments to ESD in Agenda 21. Through the adoption of Resolution 57/254 in 2002, the UN General Assembly declared the DESD, to take place from 2005 to 2014 and tasked UNESCO as the lead agency. The DESD called on 'governments to consider the inclusion of measures to implement the Decade in their respective educational strategies and action plans' (UN, 2002). UNESCO Member States agreed to this commitment, with Japan, Sweden, Germany, and Denmark, among others, championing and supporting the work through extra-budgetary funds to UNESCO (UNESCO, 2013a, p. 5).

> ESD prepares people of all walks of life to plan for, cope with, and find solutions for issues that threaten the sustainability of our planet.
>
> — UNESCO (2005a, p. 7)

UNESCO framed its efforts to promote ESD within an International Implementation Scheme (IIS) (UNESCO, 2005a), approved by Member States to facilitate collective ownership of the DESD and to connect various global initiatives to promote education (UNESCO, 2005a), including the Millennium Development Goals (MDGs), Education for All (EFA) and the United Nations Literacy Decade (UNLD). The IIS was based on the four major thrusts of ESD, and seven strategies:

Box 1.1.1: Four major thrusts of ESD and seven strategies for ESD

Four major thrusts of ESD	Seven strategies for ESD
1. Improving access and retention in quality basic education	1. Vision-building and advocacy
2. Reorienting existing educational programmes to address sustainability	2. Consultation and ownership
3. Increasing public understanding and awareness of sustainability	3. Partnership and networks
4. Providing training to advance sustainability across all sectors	4. Capacity-building and training
	5. Research and innovation
	6. Use of Information and Communication Technology (ICT)
	7. Monitoring and evaluation

Source: UNESCO (2005a).

UNESCO recognized that two complementary advocacy approaches would be needed in advancing the DESD: the first, to support the education community in its role in the transition to sustainable development; the second, to support stakeholders working on sustainable development to incorporate education into their work. With these two approaches in mind, UNESCO has focused its efforts in four main areas:

● Advocating with UNESCO Member States and across the UN system on education as a critical implementation tool for sustainable development, reaching out to both education and sustainable development communities;

● Providing policy support and advice to Member States, using the lens of ESD to reorient their education systems and to progress towards and attain the MDGs and EFA commitments;

● Championing a global debate on ESD through networking and interaction among stakeholders in ESD, thereby promoting an exchange between practitioners and experts around the world;

● Developing approaches for the assessment of progress in ESD.

To guide its work, UNESCO established groups of stakeholders and experts to advise on DESD implementation generally (High-Level Panel on DESD until January 2011 and the Reference Group for the DESD), on the monitoring and evaluation of the DESD (Monitoring and Evaluation Expert Group, MEEG); and on the preparations for the UNESCO World Conferences on ESD in 2009 and 2014 (each called International Steering Group) (UNESCO, 2009a).

In order to catalyze and coordinate efforts with other UN agencies, UNESCO established the Inter-Agency Committee (IAC) for the DESD. Fifteen agencies agreed to participate at the start of the DESD, which stands at 22 members at the end of the DESD.

A review of the DESD shows its implementation can be divided into two distinct phases. The first years, from 2005 – 2008, were invested in defining and promoting ESD, identifying actors and activities already underway, developing networks and partnerships and putting monitoring and evaluation mechanisms in place. The second phase, the beginning of which was marked by the 2009 World Conference on Education for Sustainable Development, led to a turning point where the emphasis shifted towards a renewed focus on advancing ESD in the context of quality education. This included an emphasis on teaching, learning and content, and the relevance of education to work and life. Based on the outcome document of the World Conference 2009, the *Bonn Declaration* and a newly elaborated Strategy for the Second Half of the Decade, UNESCO focused its work in ESD on three key sustainable development issues: climate change, biodiversity and disaster risk reduction, to be addressed through education. This Strategy for the Second Half of the UN DESD has guided the work from 2009 to 2014 (UNESCO, 2010a).

In the early days of the DESD, ESD was understood as primarily related to the reorientation of formal curriculum and sustainable development content. **By the end of the DESD, a richer understanding of the process of ESD is leading to the exploration and implementation of new forms of teaching and learning (UNESCO, 2012a) across all sectors and interests**.

The DESD
Milestones

World Education Forum

➤ The international community affirmed its commitment to achieving Education for All (EFA) by 2015 through the adoption of the Dakar Framework for Action. The Framework focuses on six EFA goals, the last goal being to improve all aspects of quality education.

World Summit on Sustainable Development (Johannesburg Summit)

➤ Member States and global stakeholders reviewed the outcomes of the 1992 Earth Summit and made recommendations for future actions including, 'recommend[ations] to the UN General Assembly that it consider adopting a Decade of Education for Sustainable Development, starting in 2005' (UN, 2002, para. 124d).

United Nations Literacy Decade (UNLD, 2003-2012)

➤ The UNLD was proclaimed at the 56th session of the UN General Assembly (2001) to support collective efforts to achieve the goals of EFA by 2015.

Europe/North America regional launch of the DESD

➤ This high-level meeting of environment and education ministers in Vilnius, Lithuania, saw the adoption of the UNECE Strategy for Education for Sustainable Development and marked the launch of the DESD in Europe and North America region.

Asia-Pacific regional launch of the DESD

➤ The Asia-Pacific regional launch of the DESD and the Asia-Pacific Regional Strategy for ESD took place at the UNU/UNESCO International Conference in Nagoya, Japan.

➤ A Pacific ESD Framework was developed and endorsed at a ministerial meeting in Nadi, Fiji, in 2006.

Arab States regional launch of the DESD

➤ The regional launch of the DESD took place in Bahrain. This provided an opportunity for countries in the region to exchange views and dialogue.

➤ The Regional Guiding Framework of Education for Sustainable Development in the Arab region was launched in 2008.

1992   2000   2002   2003   2005

United Nations Conference on Environment and Development (UNCED) Rio Earth Summit

➤ Agenda 21 and the Rio Declaration on Environment and Development were adopted by 178 governments. Agenda 21 is a global action programme for sustainable development.

➤ UNESCO was designated task manager of Chapter 36 of Agenda 21 on education, training and public awareness, as well as Chapter 35 on Science for sustainable development.

The UN Millennium Summit

➤ The largest gathering of world leaders in history sets the Millennium Declaration, committing their nations to achieving the Millennium Development Goals (MDGs) by 2015. The MDGs seek to address extreme poverty — income poverty, hunger, disease, lack of adequate shelter and exclusion, while promoting gender equality, education and environmental sustainability.

57th session, UN General Assembly

➤ Adopted resolution 57/254 that declared the period between 2005 and 2014 as the United Nations Decade of Education for Sustainable Development (UN DESD) and designated UNESCO as lead agency.

United Nations Decade of Education for Sustainable Development (2005-2014)

➤ Officially launched at UN Headquarters in New York.

Latin America and the Caribbean regional launches of the DESD

➤ The Ibero-American Conference on Sustainable Development, held in Rio de Janeiro, Brazil, marked the launch of the DESD.

➤ The Caribbean Regional Conference on ESD: New Approaches for the Future, held in Kingston, Jamaica, served as the Caribbean regional launch of the DESD.

➤ The regional strategy document, *Building Education for Sustainable Development in Latin America and the Caribbean*, was placed online for comments in 2005 and finalized in 2007.

Africa regional launch of the DESD

➤ The Association for the Development of Education in Africa (ADEA) Biennial Meeting served as the launch of the DESD and its regional Strategy for Sustainable Development for Sub-Saharan Africa (SSAED) held in Libreville, Gabon.

UNESCO's mid-DESD World Conference on Education for Sustainable Development (Bonn, Germany)

➤ The Bonn Declaration provided the international community with an action plan on ESD and outlined steps for implementing the remainder of the DESD.

➤ To guide its work, UNESCO developed a UNESCO Strategy for the Second Half of the UN Decade of Education for Sustainable Development.

UN Conference on Sustainable Development (Rio+20), Brazil

➤ The Rio+20 outcome document, *The Future We Want*, contained commitments made to education as important for a green economy, for work and social protection, and for training for sustainability.

➤ Member States resolved to 'promote education for sustainable development and to integrate sustainable development more actively into education beyond the DESD' (para. 232).

Tbilisi+35 commemorates 35 years of global educational efforts toward a sustainable world

➤ An Intergovernmental Conference (Tbilisi+35) brought together delegates from all over the world to carry forward the global appeal for environmental education as a means for sustainable development.

UNESCO World Conference on Education for Sustainable Development

➤ Learning Today for a Sustainable Future Conference has the following four objectives: i) celebrating a decade of action; ii) reorienting education to build a better future for all; iii) accelerating action for sustainable development; and iv) setting the agenda for ESD beyond 2014. The Conference marks the end of the DESD, celebrating its achievements and launch the Global Action Programme on ESD.

Final Global Monitoring and Evaluation Report

➤ Completion of the third and final phase of the DESD global monitoring and evaluation process: 2005–2014. This focuses on the impacts and outcomes of the DESD.

| 2007 | 2009 | 2012 | 2013 | 2014 |

Fourth International Conference on Environmental Education Towards a Sustainable Future

➤ The Fourth Conference in a series of conferences on environmental education was held in Ahmedabad, India, looked into the current status of environmental education (EE) and its development to meet the challenges of sustainability and the objectives of the DESD. The first international conference, a milestone for environmental education, was held in Tbilisi, Georgia in 1977.

First DESD Global Monitoring and Evaluation Report

➤ Completion of the first phase of the DESD monitoring and evaluation process: 2007 – 2009 provided a review of contexts and structures for ESD.

Second DESD Global Monitoring and Evaluation Report

➤ Completion of the second phase of the DESD monitoring and evaluation process: 2009 – 2012 provided a review of processes and learning for ESD.

37th session, UNESCO General Conference

➤ Adopted 37 C/Resolution 12, which endorsed the Global Action Programme (GAP) on ESD as the follow-up to the DESD.

ESD: Engaging all aspects and levels of education

ESD aims at encouraging the transformation of education so that it is able to contribute effectively to the reorientation of societies towards sustainable development. This requires a reorientation of education systems and structures, as well as a reframing of teaching and learning. ESD concerns the core of teaching and learning and should not be considered as an add-on to existing curriculum or educational practices.

ESD also applies to all levels of education and occurs in a wide range of settings whether in a formal, non-formal or informal context – from schooling to vocational education and workplace training, higher education, adult learning and public awareness education – as integral components of learning throughout life:

- **Formal education** is carried out in school, college and university systems and is based on an established curriculum and on approved teaching and assessment methods.

- **Non-formal education** occurs outside the formal system, but through other organized learning settings (e.g. youth groups, women's associations, zoos and museums, community organizations and adult literacy classes).

- **Informal education** results from daily life activities related to work, family or leisure, and is provided within families, religious organizations, community groups and traditional culture, as well as by news organizations, social media and various forms of entertainment.

- **Training** involves organized activity aimed at imparting information and/or instructions to improve the recipient's performance or to help him or her attain a required level of knowledge or skill (Fien, 2012, p. 3).

> **What is ESD?**
>
> Education for Sustainable Development (ESD) empowers everyone to make informed decisions for environmental integrity, economic viability and a just society for present and future generations, while respecting cultural diversity.
>
> – UNESCO (213r)
>
> **What is sustainable development?**
>
> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
>
> – United Nations (1987)

Key sustainable development issues are integrated into teaching and learning. These include themes such as: climate change, disaster risk reduction, sustainable livelihoods, sustainable consumption and production, biodiversity and poverty reduction. Because these issues are characterized by uncertainty, complexity and a high degree of systemic interconnection, **ESD requires participatory teaching and learning methods like critical thinking, imagining future scenarios and making decisions in a collaborative way in order to empower learners to take action for sustainable development**. ESD learning also refers to:

- learning to ask critical questions;
- learning to clarify one's own values;
- learning to envision more positive and sustainable futures;
- learning to think systemically;
- learning to respond through applied learning; and,
- learning to explore the dialectic between tradition and innovation (UNESCO, 2011a, p. 8).

The DESD has contributed to efforts to clarify ESD, place it into local, national and regional contexts and identify what constitutes good practice. Over the course of the DESD, ESD has been conceptualized in ways that have engaged regional interests and responses. In many countries and regions, different sustainability issues and educational priorities have been emphasized, leading to a rich variety of ESD conceptions and practices. At the 2009 Bonn Conference, the Bonn Declaration, which was developed and accepted by Member States and other stakeholders attending the conference, also emphasized the richness of ESD:

> ESD is based on values of justice, equity, tolerance, sufficiency and responsibility. It promotes gender equality, social cohesion and poverty reduction and emphasizes care, integrity and honesty, as articulated in the Earth Charter. ESD is underpinned by principles that support sustainable living, democracy and human well-being. Environmental protection and restoration, natural resource conservation and sustainable use, addressing unsustainable production and consumption patterns, and the creation of just and peaceful societies are also important principles underpinning ESD.
>
> — UNESCO (2009b)

The perception of ESD has shifted and broadened and has influenced parallel debates on rights and needs for quality education as fundamental to human advancement. There is now growing consensus that what constitutes quality education should be considered within the context of the overall purpose of education. It is now more widely understood that quality is not only about access or instilling basic competencies, such as literacy and numeracy. Rather, it encompasses relevance, purpose, methods, outcomes and content of education as well, supporting learners to adopt lifelong values that underpin sustainability. **Quality education for sustainable development is about what people learn, its relevance to today's world and global challenges**, and how learners develop the skills and attitudes to respond to such challenges and prosper, now and for future generations.

1.2. Purpose and outline

The DESD was accompanied by a global monitoring and evaluation effort. Despite the infancy of ESD monitoring and evaluation systems, the DESD's International Implementation Scheme signalled the need to engage in this process and identified it as a key component of the DESD. To support UNESCO in the monitoring and evaluation (M&E) of the DESD, a Monitoring and Evaluation Expert Group (MEEG) was established in January 2007. The MEEG's role has been to provide technical advice and support to UNESCO in assessing global progress. A Global Monitoring and Evaluation Framework (GME) was designed by the MEEG to measure the impact of the DESD. The framework included a recommendation to prepare the following three reports during the life of the DESD:

● The first DESD **2009 Global Monitoring and Evaluation Report**, *Review of Contexts and Structures for Education for Sustainable Development*, was a mid-decade review and focused on structures, provisions and polices that facilitate the development and implementation of ESD. The report noted a rapid rise in the creation of national ESD coordination bodies and a noticeable presence of ESD in national and international agendas.

● The second DESD **2012 Global Monitoring and Evaluation Report**, *Shaping the Education of Tomorrow*, focused on the various types of engagement opportunities and approaches to teaching and learning adopted to implement ESD at different educational levels and settings. The report noted that ESD is emerging as a unifying theme for many types of education and is increasingly perceived as a catalyst for innovation in education.

● This third, and final, UNESCO **2014 Global Monitoring and Evaluation Report**, *Shaping the Future We Want – UN Decade of Education for Sustainable Development*, focuses on the outcomes of 10 years of work around the world to advance education as a critical tool for moving societies towards sustainability. It provides insights on the impact of the call for a UN Decade of Education for Sustainable Development on all levels and areas of education, and charts the major lessons that will inform future work. The specific objectives of this final report are to:

1. take stock of the investments and achievements of ESD;

2. document impacts, changes and trends during the DESD;

3. explore how ESD addresses sustainability challenges and contributes to sustainable development practices;

4. illustrate how ESD contributes to and reinforces quality education in primary and secondary schools as well as other educational settings; and

5. point the way to a post-DESD process.

This Final Report, *Shaping the Future We Want – UN Decade of Education for Sustainable Development,* has been prepared with multiple audiences in mind. It has been designed to inform and provide guidance to government decision-makers in policy development and implementation, especially within ministries of education and ministries of environment/sustainable development. The lessons highlighted in the report may also support future programming across UN agencies, civil society organizations, the private sector, educators and educational administrators. Lastly, the report aims to speak to those who might utilize the findings to help shape future research, innovations and work in the area of education or sustainable development.

The Final DESD Report is made up of six distinct sections:

Chapter 1. Introduction	Chapter 2. Key findings and trends, 10 years on	Chapter 3. Policy
reviews the context for the call for the DESD, the implementation mechanism and the process for monitoring and evaluation. It also provides an overview of concepts and practices embedded in ESD.	provides a summary of the key findings emerging from the DESD. These findings highlight major trends and leverage points to advance ESD, as well as challenges still to be addressed, based on evidence emerging from 10 years of work around the world.	explores the policy contexts for ESD, from the establishment of frameworks and guidance at the global and regional levels through to national and local ESD policy development.
Chapter 4. Pedagogy and practice	**Chapter 5. Stakeholders and partnerships**	**Chapter 6. The future of ESD**
reviews the implementation and outcomes of ESD throughout all levels and areas of education, from early childhood care and education, primary and secondary (including teacher education) and TVET, through to HEIs, non-formal education and public awareness and capacity-building and training.	recognizes the important role that individual stakeholder groups have played during the DESD, whether from UN agencies, governments, the public sector or civil society. The collaboration of stakeholder groups, working in partnership, has served to advance ESD.	explores pathways for ESD and actions that will be needed going forward, including the tools and processes for measuring progress.

1.3. Methodology

A number of data sources were used to inform the analysis of how ESD has evolved during the DESD, as well as its impacts. These include:

Regional consultations: In 2013, UNESCO organized consultations in all regions (Africa, Arab States, Asia and the Pacific, Europe and North America, Latin America and the Caribbean) in preparation for the DESD Final Report and to collect positions on the development of an ESD programme framework after 2014.

UNESCO Global Monitoring and Evaluation Questionnaires: Member States and other stakeholders have contributed extensively to the GME process. Two questionnaires for UNESCO Member States, other key stakeholders, and UN agencies were developed. Questionnaire 1 collected preferences for a post-2014 ESD programme framework and Questionnaire 2 collected information on the final assessment of the DESD.

Questionnaires 1 and 2 were posted online and sent to UNESCO Member States, UN Agencies and other stakeholders. Questionnaire 1 captured responses from 97 Member States, 541 stakeholders and 37 UN Agencies. In total, 675 respondents from 144 countries responded. Questionnaire 2 captured responses from 70 Member States, 384 stakeholders, and 30 UN Agencies. In total, 484 respondents from 125 countries responded.

Figure 1.3.1: Combined response level to Questionnaires 1 and 2 – Member States
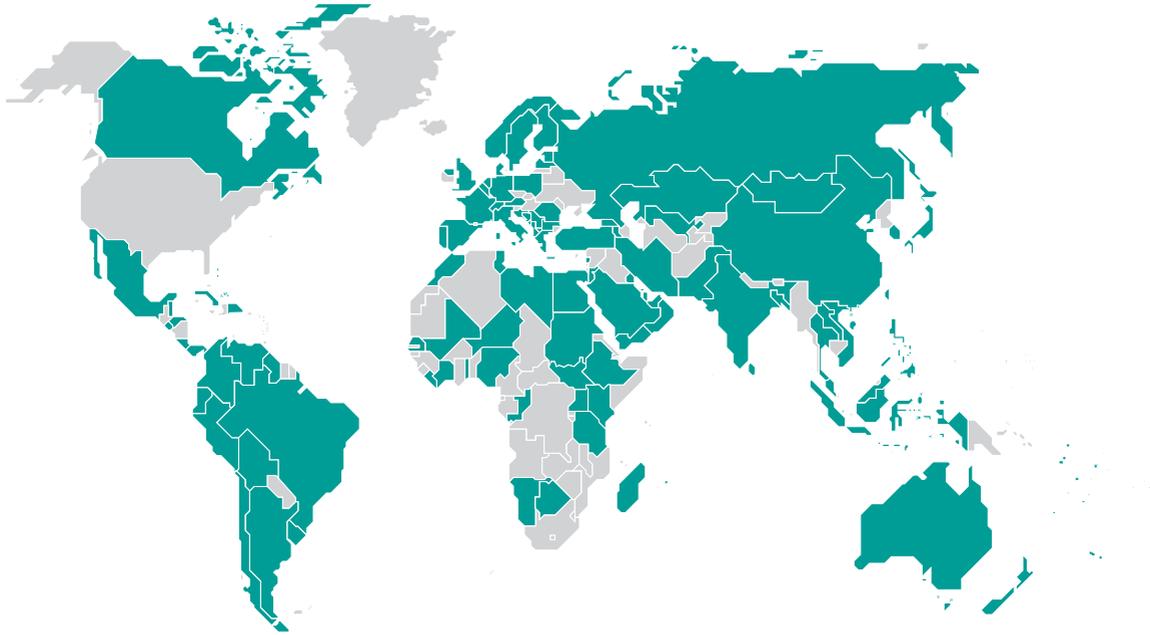
Source: UNESCO GME Questionnaires MS.

Figure 1.3.2: Combined response level to Questionnaires 1 and 2 – Key Stakeholders
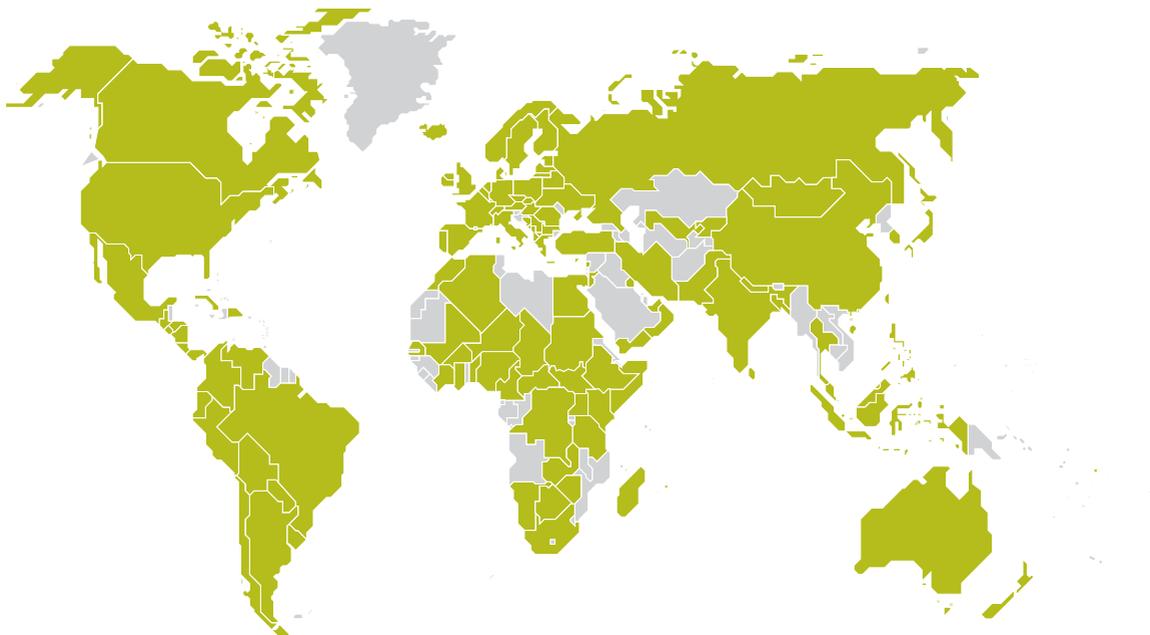
Source: UNESCO GME Questionnaires KS.

For both questionnaires, inputs were received from Ministries of Education, Ministries of Environment/Sustainable Development, National Commissions for UNESCO, UN Agencies, national and international Non-Governmental Organization (NGOs), different types of networks, youth organizations, universities, research centres, the private sector, education and learning practitioners and other concerned individuals.

The results from the questionnaires have been used to inform the drafting of this Final DESD Report and were made available to authors commissioned to prepare background papers for this report. References to Global Monitoring and Evaluation Questionnaire (GME Q) are cited as follows:

Member State responses	GME Q <name of country>, MS
Stakeholder responses	GME Q <name of organization>, KS
United Nations responses	GME Q <name of UN Agency>

Commissioned background papers: UNESCO commissioned a number of background papers to support this Final DESD Report. The aim of this component was to complement and enhance the information generated from GME Questionnaires and the regional consultation process. The commissioned papers sought to capture the diversity of activities that have been initiated in the course of the DESD, as well as those that have been inspired or catalyzed by the DESD itself. The papers assessed changes and impacts at the global, regional, national and local level in formal, non-formal and informal education processes during the 10-year period. All commissioned papers were submitted for external blind peer review.

Desk review: A review was conducted of documents produced throughout the DESD by UNESCO along with a review of studies and reports produced by others.

Semi-structured interviews and additional surveys: Several authors of the commissioned background papers for the Final DESD Report conducted sector-focused surveys and semi-structured interviews with key informants. The table below provides further detail:

Table 1.3.1: Additional surveys and semi-structured interviews

Title of background paper	Methodology
The response of UNESCO and UN agencies to the DESD	**Semi-structured interviews with 23 key informants**, from UNESCO's Education Sector, regional and cluster offices, members of the UN Inter-Agency Committee for the DESD, members of the UNESCO ESD Expert Group and Monitoring and Evaluation Group and other ESD partners, including donors and Member States.
ESD in Early Childhood Care and Education (ECCE)	**Survey of provisions for ESD in ECCE**, involving individual expert respondents from 14 countries: China, Czech Republic, Finland, Russian Federation, Slovakia, France, Ireland, Australia, Brazil, Bulgaria, Singapore, Sweden, Kenya and UK. The survey asked for details of the progress being made in implementing ESD in ECCE, as well as the contributions to this process being made by government, NGOs and teacher education institutions.
ESD in teacher education	**UNESCO Chair International Network of TEIs Survey (UCINS)**, involving members of the International Network (IN) of teacher education institutions associated with the UNESCO Chair on Reorienting Teacher Education to Address Sustainability were sent a short survey related to ESD in TEIs. **Direct contact with the individuals and/or organizations** that are active in ESD in teacher education: The Chair contacted (i.e. by email, telephone, Skype and in-person) NGOs and governing bodies to complement the findings of the survey.
ESD in higher education and research	**Consultations with various national and international e-groups** that bring together ESD and/or higher education experts and practitioners, as well as with individuals with specific ESD or higher education roles who could provide data for case studies. **Informants with extensive experience in ESD** were identified in each UNESCO region. They checked the validity of the findings and reviewed early drafts of the report.

Title of background paper	Methodology
ESD in private sector training and professional development	**Online survey** involving individuals working in the private sector and sustainability field. The survey was posted on a number of LinkedIn groups.
	Phone interviews with 12 experts in executive education for sustainability in North and Latin America, Europe and Australia to complement the findings of the online survey.
	Email contact with individuals and/or organizations in the background paper authors' professional networks, including key stakeholders in the private sector, the UN, the European Commission and the World Bank, to validate the initial findings.

Limitations of the global monitoring and evaluation process

It should be noted, the findings of this report must be considered in the context of the limitations of the global monitoring and evaluation process.

● It has been difficult to differentiate those policies, plans and activities that were developed specifically in response to the DESD, those that were already in place but have gathered momentum because of the existence of the DESD, and those that took place in parallel to the DESD but without direct or indirect relationship to the DESD itself. What is presented in this Final DESD Report includes the changes occurring during the 10-year period marked by the DESD, including parallel initiatives, and not just initiatives developed explicitly under the label of the DESD.

● The complexity and scope of the GME Questionnaires led to wide variations in reporting. In some cases, Member States undertook an extensive multi-stakeholder input, while in other cases only one or two governmental departments or technical institutes were involved. In some cases, respondents could only answer with the data they had immediately available and the view of ESD progress they had from their position. Some Member States and stakeholder respondents provided more detailed descriptions of activities, thereby providing a more complete picture of the state of ESD in that particular sphere and/or Member State.

● One of the challenges of generating a global report that examines a 10-year period is trying to capture the depth and breadth of activities that have taken place. The purpose of this report is not to identify and highlight any and all activities and practices, but to assess how the wide range of policies, projects, networks, tools and initiatives that have taken place around the globe have contributed to advancing ESD. Where appropriate, specific examples are cited within the report to illustrate the kind of initiatives that have taken place during the DESD.
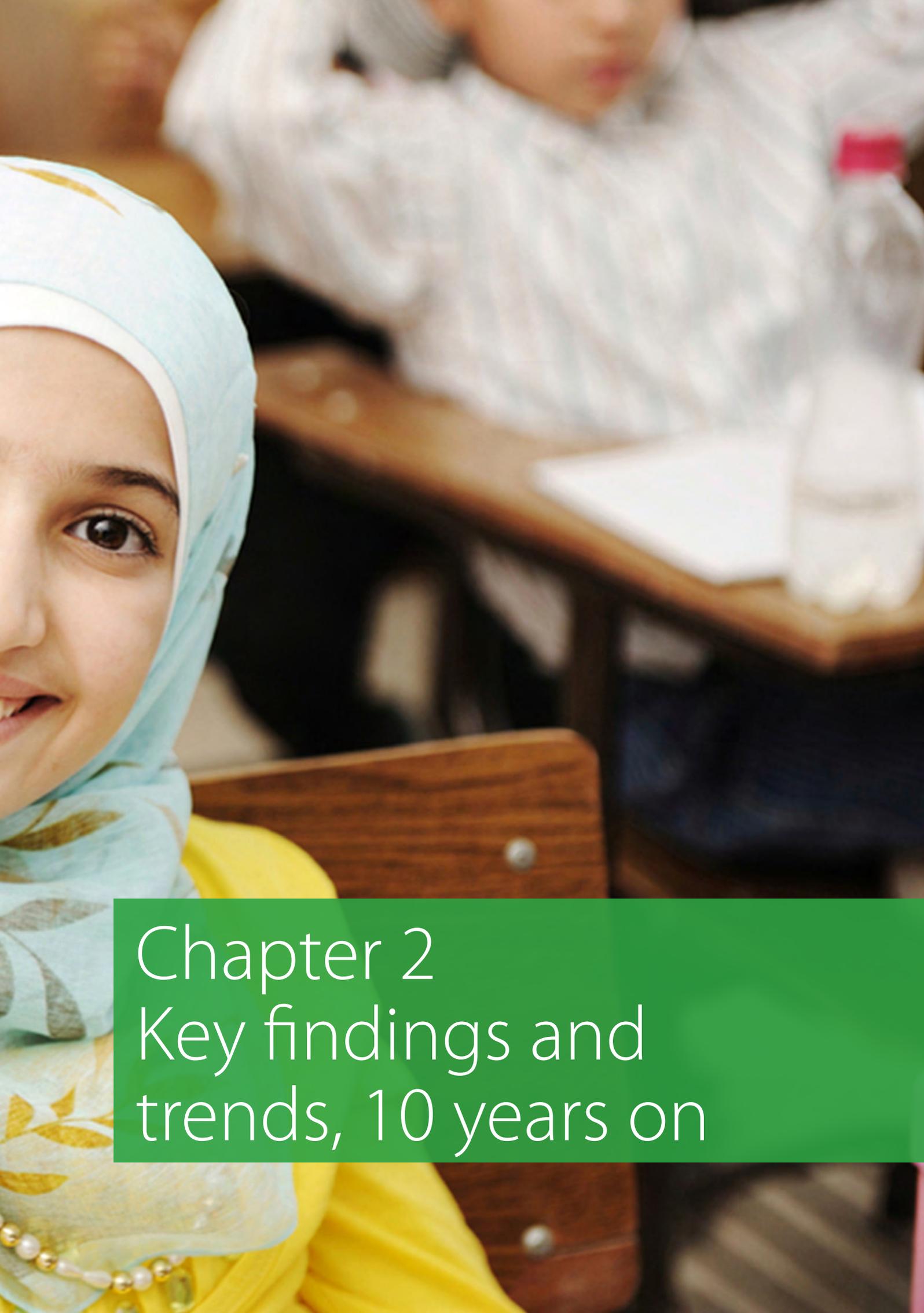
Chapter 2
Key findings and trends, 10 years on

Chapter 2: Key findings and trends, 10 years on

Through the Call for the Decade of Education for Sustainable Development (DESD), UN Member States have committed to integrate ESD into education systems. This commitment has not been without its challenges; as education systems are complex and involve multiple levels of decision-making on educational policy and its implementation within schools, institutions of higher education, the workplace and communities. Advancing changes within education systems have required interventions at many different levels and have involved a broad cross-section of stakeholders.

The following key findings highlight major trends and leverage points that have advanced ESD and are based on evidence from 10 years of work around the world.

2.1. Trends

ESD, an enabler for sustainable development

1. Education systems are addressing sustainability issues

Across many countries, a strong trend can now be seen to make education more relevant to the social, environmental, and economic challenges that the world faces today and in the future. ESD provides a renewed vision and purpose for educational policy and practice. Evidence at the end of the DESD suggests that the process of reorienting education policies, curricula and plans towards sustainable development in most reporting Member States is well underway, although progress remains uneven.

There has been a clear increase in the understanding that ESD is a lifelong learning process that begins in early childhood and advances throughout primary and secondary education, technical and vocational skills development, higher education, ongoing workplace training and professional development, and public awareness. In this context, quality education can now be understood not only to instil basic competencies (such as literacy and numeracy) but to develop lifelong values that underpin sustainability. An enriched view of quality education is now seen to encompass the relevance of education and its purpose, methods and content for learning throughout life. Quality education is about what and how people learn, its relevance to today's world and global challenges, and its influence on people's choices. Many now agree, quality education for sustainable development reinforces peoples' sense of responsibility as global citizens and better prepares them for the world they will inherit.

2. Sustainable development agendas and education agendas are converging

Stakeholders for sustainable development are increasingly taking up education, public awareness and training to advance sustainable development. The importance of ESD was reinforced in the Outcome Document of the 2012 UN World Conference on Sustainable Development. Education is figuring prominently in international debates on sustainable development, and greater attention is now being paid to education, training and public awareness as essential mechanisms to support the implementation of major environmental conventions and agreements. Significantly, more and more countries are incorporating education strategies, tools and targets into national sustainable development strategies.

At the national level, several countries have incorporated education strategies, tools and targets into national SD strategies, climate change plans and related economic frameworks. Work in many countries on building greener economies is being aligned with the need for green skills and mindsets. Strengthened coordination between government agencies responsible for sustainable development policy and planning, and those responsible for education, has been found to be necessary to advance education in support of national sustainable development objectives.

Importance of stakeholder engagement for ESD

3. Political leadership has proven instrumental

Political leadership has helped to create the organizational climate necessary for change and has put resources in place to secure that change. This has also led to better national and subnational coordination of ESD implementation. As a result, important advances have been made to put national ESD strategies or plans in place, contributing to the integration of ESD into national education and sustainable development policies.

Countries have adopted a variety of approaches to reorient education systems: from creating a strong basis for ESD by embedding it in national legislation, policies and standards, through to more decentralized approaches involving multiple stakeholders. Top-down, bottom-up and blended approaches have served Member States well in responding to the specific administrative structures and needs of countries. Capacity development for policy-makers on ESD has been found to be essential for advancing change, as has strengthening the education of administrators, teachers and trainers in ESD.

4. Multi-stakeholder partnerships are particularly effective

The DESD has helped to reinforce the importance of partnership and collaboration among stakeholders. Knowledge exchange and collaboration among UN agencies is supporting the inclusion of education in the Post-2015 Development Agenda and sustainable development goals processes; the deployment of mechanisms like ESD national coordinating groups is helping to shape ESD policy at the country level and is supporting research and implementation. Moreover, interactions among the growing networks of universities investing in ESD in Africa, Latin America and elsewhere have led to international commitments and peer support for ESD implementation. Similarly, networking of schools has connected students to learning and sharing across the globe. In addition, partnerships involving civil society organizations, the private sector, schools and governments have also been crucial in building ESD capacity in many countries.

Although working through networks and in partnerships can be challenging, it is nevertheless essential for wide-scale system change. Partnerships and networks have existed for many years as mechanisms to advance work in climate change, biodiversity, water, poverty alleviation, sustainable consumption and production, along with other major challenges facing the world today. There is growing capacity now in the education sector to work in alignment and collaboration with these long-standing sustainable development partnerships and networks, suggesting that pursuit of these relationships will prove fruitful in the coming years.

5. Local commitments are growing

ESD is grounded in local experience and actions. Experiences during the DESD reveal a diversity of ways in which ESD is being implemented to include unique features that relate to the local context. Lessons from every level and area of education are reinforcing the importance and benefits of providing a local context for ESD. For example, in formal education, community engagement helps young children and students to learn about local issues. Elsewhere, lessons from public awareness raising efforts have reinforced the importance of working at local levels to increase citizens' knowledge and participation in local solutions. Similarly, the private sector's need for an educated, skilled workforce to support green and sustainable enterprises at the local level has influenced technical and vocational education and training as well as capacity-building.

Lessons from the DESD suggest that increased engagement with sustainable development organizations that focus specifically on local level sustainable development planning and action – local NGOs, networks of cities and municipalities, rural development networks and other similar groups – can provide additional leverage for ESD at the local level.

ESD is galvanizing pedagogical innovation

6.   Whole-institution approaches practise ESD

Whole-institution approaches encompass mainstreaming sustainability into all aspects of the learning environment. This includes embedding sustainability in curriculum and learning processes, facilities and operations, interaction with the surrounding community, governance and capacity-building.

Such approaches are increasing and are helping learners to contribute to sustainable development in their schools or institutions, communities and workplaces. In a move towards long-term efforts to address the social, economic and environmental footprint in their communities, schools are engaging students in the process of reducing and managing that footprint. We are also seeing the improvement of school-community relationships in topics related to ESD. Schools are utilizing the school environment and outdoor spaces as a resource for curriculum.

The support of school administrators and teachers has been a key condition to the successful adoption and implementation of ESD. This shift has also been supported by civil society organizations, and in many cases it is now gaining importance within regional and national policy agendas, particularly in OECD countries.

Institutions of higher education have also made significant high-level commitments to whole-institution changes, from sustainability in operations and management to changes in teaching, curriculum and research, as well as participation in strengthening sustainable development in their surrounding communities.

7.   ESD facilitates interactive, learner-driven pedagogies

ESD is influencing learning pedagogies and advancing approaches that help learners to ask questions, analyze, think critically and make decisions in collaboration with others. Innovative approaches to learning are contributing to changes in knowledge and understanding among learners that will support sustainable development in the future. Participatory learning processes, critical thinking and problem-based learning are proving particularly conducive to ESD. Although more evidence is needed, research is beginning to suggest that students who learn through these methods, together with the content of sustainable development, develop greater awareness of and responsibility for the world around them. Educators at all levels are central to this process.

ESD has spread across all levels and areas of education

8.   ESD is being integrated into formal education

There is growing recognition among policy-makers that the earliest stage of learning (ECCE) is the foundation of sustainable development. There is also an increased understanding among education experts of the capacity of young children to respond to environmental/sustainability issues and to be agents of change within their families and communities. While progress on ESD in ECCE may still be limited, the understanding and commitment to reorient ECCE is underway.

In primary and secondary education, evidence of increasing policy attention to, and integration of, ESD is especially strong. Member States report a wide range of actions with primary and secondary policy and planning to be among their greatest achievements during the DESD. Reviews of official curriculum documents have found that many countries now include sustainability and/or environmental themes as one of the general goals of education. However, although there has been significant movement on policy and curriculum, efforts to prepare teachers to

deliver on these objectives have not advanced to the same extent. More work still needs to be done to reorient teacher education to approach ESD in content and learning methods.

The last 10 years have witnessed higher education stepping up its efforts towards sustainable development. There have been significant efforts to introduce sustainability into higher education operations (although as yet there are few examples of fully 'green' universities). There are many instances of new specialist courses in sustainability, experimentation with the institution-wide reorientation of curriculum, various examples of good practice in learning and teaching processes, and important advances in sustainability-related research and community relations. Although progress has been made, the global transformation of higher education towards sustainable development has yet to occur. Lessons from the DESD suggest that more than the alignment or scaling-up of existing good practice will be needed – with greater attention to systemic approaches to curriculum change and capacity-building for leaders.

9.   Non-formal and informal ESD is increasing

In the daily lives of communities, families and individuals, awareness of environment and sustainable development issues is reported to have improved in many countries, although evidence that links awareness to changes in choices and behaviours remains difficult to capture. Further research on understanding changes in social norms and individual behaviours is required. In particular, with the rise in the use of social media, new understanding is needed of what constitutes global citizenship in a 'virtual' environment, and how people are now being influenced through massive networks of friends and colleagues in addition to more formal education processes and traditional media.

Major gains have been made through education and training to strengthen the private sector to respond to sustainable development. As of 2014, large businesses and multinational corporations have an increased awareness of sustainability, acquired through peer learning in non-formal settings (conferences, workshops, business association events etc.) and through more formal, executive education programmes. In many cases, education, training and awareness raising efforts are leading to the adoption of sustainability as a business strategy. Business and industry are now looking for more technical education and training for implementation of sustainability-related practices, such as low carbon design and production, full-cost accounting and sustainability reporting.

There is considerable scope for leveraging the wide range of sustainable development training, capacity-building and awareness raising efforts being used by civil society and the private sector. In particular, much is happening in relation to placing education into sustainable development and sustainable development into education that is not being called or officially recognized as ESD.

10.   Technical and vocational education and training advances sustainable development

Global drivers for advancing ESD in TVET include: changes in the physical environment requiring more technologies and skills for remediation of degraded environments and adaptation to changes in the environment resulting from: climate disruption and natural disasters; changes in consumer demand for greener products and services; and changing international guidelines and government regulations and incentives for the management of waste, water, energy, building and transportation systems. As an outcome of these drivers, international sustainable development policy and planning and technical and vocational education and training (TVET) policy and planning are now aligning in the green economy and green skills agenda, leading to new research and capacity-building efforts. As a result of international attention, national TVET systems are beginning to recognize the need for change to support greener economic development. Private sector demands for skilled workers in greening traditional industries and serving new green business are also influencing the reorientation of TVET.

2.2. Challenges

While these 10 trends are encouraging – and demonstrate where leverage may exist to advance ESD – Member States and other stakeholders continue to face several challenges:

- **Further alignment of education and sustainable development sectors:** While we have learned at the end of the DESD that the alignment of education and sustainable development policy is crucial for advancing ESD and that there is a growing convergence of these agendas, the linkages are still weak in many countries. Attaining the widespread, overt and sustained political support necessary to drive change is still a challenge. Insufficient coordinated integration of ESD into national development policies and plans, together with little inter-ministerial communications, were considered by many Member States to be ongoing barriers to ESD implementation. Inter-ministerial cooperation and coordination will need to be increased significantly to ensure that education supports sustainable development objectives, and that sustainable development policy-makers provide the support for education.

- **More work for institutionalizing ESD:** The majority of Member States have affirmed that ESD is in solid progress, but few have reported full implementation of ESD across education systems, policies and planning. Moving from creating the enabling environment (high-level commitments, goals and policy guidance) to actual changes in curriculum and educator practice at all levels has been slow to respond in most areas of education. Systemic change will require i) ongoing efforts to deepen the understanding of quality education to include relevance, purpose and values for sustainability; and ii) an institutionalization of ESD, including the investment of staff and financial resources that moves beyond the efforts of individual leaders and champions, and that will maintain continued efforts when faced with political changes, and changes in priorities and personnel. Establishing global goals, the continuation and expansion of national focal points and coordinating groups' post-DESD will be important to sustain momentum towards embedding ESD in national/subnational education policy and practice. In addition, increased capacity-building for policy-makers, education leaders and practitioners is also critical to driving ESD forward.

- **Improving monitoring and evaluation:** To date, there has been limited use of monitoring tools to assess the quality of ESD programmes, the extent of their implementation, and the ESD learning outcomes they generate. Monitoring and evaluation must be improved to secure the evidence for continued and expanded investment in ESD, and for reflexive engagement with ESD as an emerging educational reorientation process.

The DESD has not only succeeded in raising levels of awareness of ESD, but has moved stakeholders towards strengthening their understanding through research, demonstration projects, capacity-building efforts, partnerships and networks, leading to the application of lessons learned and changes in policy and practice in many areas. In spite of the challenges still to be addressed, the solid foundation of commitments, knowledge and good practices developed during the DESD will support global, regional, national and local responses – and sustain momentum on ESD into the future.

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Chapter 3
Policy

Policy
Leadership matters

Highlights

Political leadership is crucial for ESD.

ESD is increasingly a part of policies to address sustainable development issues (e.g. climate change).

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

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

Challenges

Major work remains to ensure full policy coherence between the education sector and the sustainable development sector.

ESD is not integrated coherently across relevant sectorial or sub-sectorial policies.

Policy: ESD Actions around the World

Results from the UNESCO GME Questionnaire

80%
of Member States report having appointed an ESD focal point.

66%
of Member States report having a national ESD strategy or plan.

50%
of Member States have a national ESD/DESD coordinating body.

50%
of Member States have included ESD in relevant policies.

29%
of Member States report ESD in legal or regulatory documents.

The Mediterranean Strategy on ESD (MSESD) was formally and unanimously endorsed by the 43 Ministers of Environment of the Union for the Mediterranean on 13 May 2014.

In Togo, the educational policy framework (Lakalaka) is grounded in national culture and includes a new, **ESD-oriented curriculum entitled, Quality Education for a Sustainable Future** (Hiebert, 2013).

In the Law on Education (2007) in Cambodia ESD has been embedded as a fundamental component of the education programme (Council for the Development of Cambodia, 2007).

General Teaching Council for Scotland (GTCS), the regulatory body for teachers, revised the Professional Standards to include ESD (Watson, 2013)

ESD is seen to be an implementation mechanism for **Vision 2030, Qatar's national sustainable development strategy** (GME Q Qatar, MS).

ESD is now 'part of the National Curriculum Framework and because of the **MID [Maurice Ile Durable] societal project**, ESD is being addressed by many formal and non-formal institutions/organizations' (GME Q Mauritius, MS).

In Kenya, ESD is captured in **Vision 2030**, Kenya's roadmap to the realization of sustainable development, showing the importance of alignment with national sustainable development objectives (GME Kenya, MS).

In Costa Rica, the **National Strategy on Climate Change (Estrategia Nacional de Cambio Climatico, ENCC)**, includes capacity-building and public awareness, education and cultural change, with the aim of increasing environmental literacy (Tsuneki and Shaw, forthcoming, p. 1).

Open Working Group on Sustainable Development Goals

The Open Working Group of the UN General Assembly proposed ESD as one of the targets for the education goal for post-2015 noting: 'By 2030 ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development' (UN, 2014).

Chapter 3: Policy

> We resolve to promote education for sustainable development and to integrate sustainable development more actively into education beyond the United Nations Decade of Education for Sustainable Development.
>
> — UN (2012c, para 233)

Advancing changes within education systems have required interventions at many different levels, most often starting with strengthening policy frameworks to facilitate and guide the implementation of ESD. This section explores the policy contexts for ESD, from the establishment of frameworks and guidance at the global and regional levels through to national and local ESD policy development.

3.1. Global policy

In framing global policies for ESD, UN forums have provided leadership, driven global cooperation and shaped the international discourse. The UN is an important arena in which Member States come together to agree on common goals and objectives and codify norms in the form of resolutions and declarations as well as conventions and treaties. The UN, its organizations and agencies are mechanisms for setting agendas, creating a global architecture for responses and deploying implementation tools and mechanisms to inform and encourage broader audiences to act. Frameworks at the global policy level tend to influence regional and national policies. Within the domain of ESD policy, the UN provided a platform for the inspiration, goal-setting and capacity support necessary to guide Member States in the development of ESD. As Belgium asserts, 'international policy-making regularly accelerates the Flemish ESD policy process' (GME Q Belgium, MS).

Overview of progress

Throughout the DESD, the United Nations, with UNESCO as lead agency for the DESD, has championed the vision for ESD through which everyone around the world has the opportunity to benefit from quality education and learn the values, behaviours and lifestyles required for a sustainable future and for positive societal transformation (UNESCO, 2005a, p.6). Realizing this vision requires a fundamental reorientation of education systems at all levels – formal, non-formal and informal – to contribute to the goals of a more equitable, environmentally sustainable and secure world.

At the start of the DESD, UNESCO was tasked with preparing an International Implementation Scheme, clarifying its relationship with other global educational policy processes, in particular the Dakar Framework for Action on Education for All (EFA) adopted at the World Education Forum in 2000, the Millennium Development Goals (MDGs) and the United Nations Literacy Decade (2003 – 2012) (UNLD). Collective efforts at the global policy level have led to greater understanding of the concept of ESD and how it contributes to the MDGs and EFA priorities as a mutually reinforcing framework. While EFA focuses on access to education and quality in the provision of education, and the education goals of the MDGs focus on the important challenges of basic education and gender equality, the DESD focuses on relevant content, innovative pedagogies and the need to reorient education systems towards sustainable development. The MDGs and EFA have been focused primarily on the challenges of access to education in developing

countries, but with the demographic and geopolitical changes over the last 10 years, together with shared global environmental crises, it has become easier to recognize ESD as an agenda relevant to all countries, whether they are highly developed, emerging economies or developing.

Within the international development sector, ESD was often seen as relevant mainly to formal education, leaving aside how the DESD should get traction on non-formal education, training, public awareness and media engagement. Within the education sector, it was challenging to align ESD with national education policy objectives, particularly in developing countries, whose education agendas were more aligned with the MDGs and EFA international frameworks.

In 2009, the mid-point of the DESD, UNESCO convened Member States and stakeholders to assess progress at the Bonn World Conference on Education for Sustainable Development. The debates during and following 2009 helped to clarify that 'quality education' must consider the aim of education: what education is for. Education is not only about access, but also its methods and content – that education is about what and how people learn – and its relevance to today's world and global challenges. In particular, 'education should be of a quality that provides the values, knowledge, skills and competencies for sustainable living and participation in society and decent work' (UNESCO, 2009b, para. 4:1). The Bonn Conference provided an important platform for prioritizing efforts and sparked new engagement patterns and dialogues on ESD. The resulting *Bonn Declaration* yielded a more focused action plan for ESD that included strengthening ESD in key sustainable development conventions such as those focusing on climate change, disaster risk reduction and biodiversity.[1]

At the end of the DESD, education is now receiving renewed attention as an instrument to shift societies towards sustainable development. As the 2013–14 *Education for All Global Monitoring Report* (GMR) affirms, with its focus on the importance of quality education, **education helps people understand and participate in democracy, empowers women and has a vital role in addressing and adapting to environmental change and degradation** (UNESCO, 2014a). More significantly, the GMR highlights that 'by improving knowledge, instilling values, fostering beliefs and shifting attitudes, education has considerable potential to change environmentally harmful lifestyles and behaviors' (UNESCO, 2014a, p. 17). With the GMR's growing body of evidence that education does indeed transform lives, the focus on the role of education in transforming societies as a whole has been renewed.

Affirming the critical importance of education as an essential tool for transition to sustainability

In recent years, ESD has gained increasing support through the renewed attention education is receiving as an instrument to achieve sustainable development at the global, national and local levels. UN stakeholders working on global sustainable development policy increasingly share the view that countries will be better able to address the challenges they face if they equip their citizens with the knowledge, perspectives and skills needed today and in the future. There is a growing consensus that countries not only need to change policies and technologies, but also ensure that their citizens are equipped with the knowledge to make choices that will support living sustainably (UNESCO, 2013b; 2013c).

Education is now being mainstreamed into environment and development agendas in a number of UN bodies and processes. In 2011, the UN Environment Management Group called for ESD to address the 'requisite attitudes, knowledge and values for responsible eco-citizenship' (UN Environment Management Group, 2011, p. 103). UNDP's 2011 Human Development Report singled out the need for education in order to encourage sustainable consumption (UNDP, 2011, p. 27). The UN Secretary-General's High-Level Panel on Global Sustainability highlighted ESD in its 2012 report as one of the six priority areas for action, to help ensure that 'all of society can contribute to solutions that address today's challenges and capitalize on opportunities' (UN Secretary-General's High-Level Panel on Global Sustainability, 2012, p. 6). Opportunities have opened up at the global level to further highlight the need for ESD.

The importance of education was recognized in the consultations for the Post-2015 Development Agenda, taking place under the auspices of the UN to help shape the future global priorities as the MDG commitment period comes to an end. Across 11 thematic dialogues, whether about education itself, health, equity, conflict or environmental sustainability, there has been an emphasis on education as a powerful catalyst for sustainable, equitable development. According to the final report on the consultations, 'education was deemed to be one of the most powerful tools

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1   The Bonn Declaration can be found at http://unesdoc.unesco.org/images/0018/001887/188799e.pdf

at hand to drive the transformational changes necessary for sustainable development, but, to realize this potential, education systems need to be flexible, culturally sensitive, relevant and suited to changing people's values and behaviours' (UNDP and UNEP, 2013, p. iv).

As an outcome of the 2012 United Nations Conference on Sustainable Development (Rio+20), nations agreed to develop Sustainable Development Goals (SDGs) to build on the MDGs and EFA goals and converge with the Post-2015 Development Agenda. Work towards the SDGs is coordinated by an Open Working Group (OWG) commissioned by the UN General Assembly, made up of 30 Member States. As an initial input to the work of the OWG, Member States were asked to describe the key elements of a sustainable development agenda. Education was ranked among the top four (after food, water, and energy) (UN, 2012d). The fourth session of the OWG was dedicated specifically to education. Summarizing the outcomes, the co-chairs spoke of the relevance of education for 'the transformative shifts required for sustainable development' and emphasized that 'a holistic education can shape societal values that are supportive of sustainable development' (OWG, 2013, p. 4).

Most encouraging is the inclusion of ESD in the proposal for SDGs prepared by the OWG. This inclusion represents a major international reinforcement of commitments to education as an essential building block for more sustainable societies. ESD is referred to under the proposed goal, 'Ensure inclusive and equitable quality education and promote life-long learning opportunities for all' (UN, 2014), together with the following target:

> By 2030 ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development.
>
> – UN (2014)

In addition, two other entry points for ESD are provided. Under the proposed goal 'Ensure sustainable consumption and production patterns', the following target is suggested: 'By 2030 ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature' (UN, 2014). Similarly, under the proposed goal, 'Take urgent action to combat climate change and its impacts', the following target is put forward: 'improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning' (UN, 2014). Although there will be further refinement of these goals, **there is clearly a greater understanding at the global level of the importance of ESD in addressing concerns about the relevance and quality of education**.

Support for ESD inclusion in a post-2015 agenda comes from a wide range of Member States. For example, at the sixth BRICS Summit in 2014, Brazil, Russia, India, China and South Africa acknowledged the strategic importance of ESD, stating that: 'We recognize the strategic importance of education for sustainable development and inclusive economic growth' (AGENCIES, 2014). In a similar vein, the Commonwealth Ministerial Working Group on the Post-2015 Development Framework for Education emphasized that, 'the architecture of the framework should reflect four underlying themes that should be mainstreamed across the goals: 'Education in Emergencies, Migration, Gender and Education for Sustainable Development'. ESD was mentioned in their draft recommendations presented to the UN High Level Panel on the Post-2015 Development Agenda, calling for 'education for sustainable development [to be] mainstreamed in all education policies, teacher and school leader preparation, and curricula' (The Commonwealth Secretariat, 2012).

The attention given to education in the setting of a Post-2015 Development Agenda has contributed to, and reinforced, the increased attention to ESD in other major international sustainable development policy agendas. ESD is being promoted as an important mechanism to advance the implementation of commitments under a number of international environment and development-related conventions (See Box 3.1.1.1). These efforts have been supported

by UNESCO, prioritizing education for climate change, biodiversity and disaster risk reduction as an outcome of the 2009 Bonn World Conference on ESD (UNESCO, 2009b, para. 16).

Box 3.1.1.1: The inclusion of ESD in major sustainable development conventions and agreements

➤ UN Decade on Biodiversity 2011–2020 and the New Strategic Plan have given further impetus to biodiversity education. This work is supported by Article 13 of the Convention on Biological Diversity and its work programmes.

➤ UNFCCC's Doha Work programme on Article 6 sets the agenda for education, training and public awareness on climate change. Conferences of the Parties (COP) 18/CMP 8 launched the United Nations Alliance on Climate Change Education, Training and Public Awareness, in order to promote meaningful, results-oriented and effective international cooperation in support of action for learning for climate change.

➤ Priority 3 of the Hyogo Framework for Action 2005–2015 on Disaster Risk Reduction focuses on using knowledge, innovation and education to promote disaster risk reduction.

➤ Education and awareness raising are key components of the 10-year Desertification Strategic Plan and Framework 2008–2018. The UNCCD has included education in its observance of the UN Decade for Deserts and the Fight against Desertification (2010–2020).

The importance of ESD policy can most clearly be seen in the convergence between policies for greening economies and education policy related to TVET, coming together under the green economy-green skills agenda. UNEP has described a green economy as one that 'results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities' (UNEP, 2011, p. 16). In order to advance the greening of economies, appropriate technical and vocational skills will be needed. It is at this intersection of new approaches to economic development that the role of education in supporting that development can most clearly be seen; with the resulting potential of system-wide transformation as the two domains begin to work together.

UNESCO promotes TVET for SD as going beyond the technical credentials required, and including the mindset and skill set that can be applied across all fields of endeavour; enabling all workers to play appropriate roles both in the workplace and in the broader community towards sustainable development. ESD is at the core of TVET for SD and provides the framework to reorient TVET (UNESCO, 2013d). UN agencies, (i.e. UNESCO-UNEVOC, UNEP and the International Labour Organization), working together with others such as the European Centre for the Development of Technical Training (CEDEFOP) through an Interagency Working Group on 'Greening Technical and Vocational Education and Training (TVET) and Skills Development', are playing a leadership role in advancing this alignment.

This convergence of policy domains at the international level has led to a wide-reaching programme of work across international agencies, resulting in comprehensive reports, high-level training programmes and policy guidance for national-level implementation. Based on these efforts, ILO and CEDEFOP assert that 'coherent multi-level skills development responses are seen as the most effective approach to greening economies', as they address both consumption – through raising environmental awareness – and production, by moving to more environmentally conscious practices through training programmes (ILO and CEDEFOP, 2011, p. xxiii).

The inclusion of SD issues and innovative learning methods enhances the relevance of education

> ESD has helped significantly in the content of education provided by: a) the introduction of new holistic and systemic approaches and b) the acceptance of the innovative teaching methodologies among an increasing number of educators.

> — (GME Q Greece, MS)

ESD also offers a renewed vision and purpose for educational policy and practice. Among the recent global education initiatives that have greatly influenced policies, there are signs of stronger linkages between the development-

focused issues of access and quality education and the concept of the universal purpose of education in support of more sustainable societies.

This emphasis on the purpose of education in support of global goals lies at the heart of many recent UN initiatives, including the UN Secretary General's Global Education First Initiative (GEFI), which affirms that 'access to education is critical. But it is not enough. We must make sure that people acquire relevant skills to participate successfully in today's knowledge-based society' (UN, 2012b); the 2009 Belem Framework for Action on Adult Learning and Education (ALE), which recognizes the role of ALE in achieving 'the UN agenda for sustainable human, social, economic, cultural and environmental development' (UNESCO-UIL, 2009); and the Tbilisi+35 Intergovernmental Conference on Environmental Education[2], which acknowledged that **ESD is now internationally recognized as a fundamental education strategy to prepare citizens with the values and principles of sustainable development, the knowledge of sustainability issues, and the skills and motivation to apply this knowledge to their own actions** at local, national, regional and global levels (UNESCO, UNEP and the government of Georgia, 2012). These efforts, both parallel to and in conjunction with the DESD, have succeeded in moving global actors from a very wide spectrum of interests to finding common ground, emphasizing the need for education content and skills that are relevant in today's world.

One example of the increased emphasis on the relevance of education is the attention being given to transferable or transversal skills. The Learning Metrics Task Force (LMTF), a global consultation convened by the Brookings Institution and the UNESCO Institute of Statistics, speaks of the need for an 'adaptable, flexible skill set to meet the demands of the 21st century' (LMTF, 2013a). Such skills may include, among others, those necessary for advancing sustainable development, including 'collaborative problem solving skills' (LMTF, 2013b). UNESCO's 2013 Global Monitoring Report also emphasizes the importance of transferable skills: 'Curricula need to ensure that all children and young people learn not just foundation skills, but also transferable skills such as critical thinking, problem solving, advocacy and conflict resolution, to help them become responsible global citizens' (UNESCO, 2014a, p. 36). It remains to be seen whether and how the recommendation of the Task Force can be implemented. However, the attention given to these transversal skills is encouraging and such skills development should enhance and support the teaching of substantive knowledge and knowledge structures (the 'content' of sustainable development).

Evidence of attention to the relevance of education can also be found in stakeholders' post-2015 discussions. **Private sector companies, civil society organizations, and others are playing a key role in broadening the purpose of education as a high priority for new global goals.** For example, private sector companies in the UN Global Compact consultations on the Post-2015 Development Agenda emphasize the importance of content and are calling for sustainable development to be included in curricula post-2015 (UNGC, 2014).

Educationalists themselves are also becoming a strong voice for change. The global association of teachers' unions and Education International state the following in a position paper for education post-2015: 'Hence, quality education is fundamental to the achievement of all other development goals, including gender, equity, health, nutrition and environmental sustainability' (Education International, 2014). In addition, major groups (Workers and Trade Unions, Women, Children and Youth, NGOs, and Indigenous Peoples) in a joint response to Sustainable Development Goals Focus Area 4 on Education, similarly agreed by noting, 'Education is a primary means to realising lasting social change and sustainable development […] In brief, **what people learn, how they learn, where they learn, in what context and with whom they learn are all critical for the achievement of quality education and sustainable development**' (UN, 2012a).

UNESCO is itself moving forward on the gains made during the DESD and has argued for ESD to be included in post-2015 development and education agendas. Taking this into account, the 2014 UNESCO Global Education Meeting Draft Final Statement (Muscat, Oman) has included ESD as one of the global targets necessary to support the overall goal: 'Ensure equitable and inclusive quality education and lifelong learning for all by 2030'. Target 5 is: 'By 2030, all learners acquire knowledge, skills, values and attitudes to establish sustainable and peaceful societies, including through global citizenship education and education for sustainable development'. All governments are now asked to support these targets in national, regional and global consultations on the Post-2015 Education Agenda and in the ongoing discussions on the Post-2015 Sustainable Development Goals (UNESCO, 2014b).

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2   While the Post-2015 Development Agenda consultations and the consultations promoting new Sustainable Development Goals have run in parallel, efforts are underway across the UN to align and merge these two processes.

The discussions around the development of the SDGs have opened up opportunities to reaffirm that it is not only increasing access and basic skills education that are instruments to sustainable development, it is an education which enables people – as citizens, workers and consumers – to acquire the knowledge, skills and values for them: to secure sustainable livelihoods and lead sustainable lifestyles; to understand the world around them; to be aware of the interconnected nature of global challenges and to gain a sense of responsibility emanating from such awareness; and to contribute to a just, more sustainable society.

Implications for the future

> ESD has helped stakeholders to comprehend the strength of having an integrated approach to learning and the usefulness of using innovative, active and participatory approaches to teaching and learning. But there is still a long way to go! What is interesting is that the decade has initiated a debate with respect to ESD and quality education.
>
> — (GME Q Mauritius, MS)

At the global level, the DESD has served to highlight the purpose of education in support of global goals, affirmed the critical importance of education in advancing sustainable development policy agendas and contributed to aligning the policy agendas on greening economies and technical vocational skills development.

When 192 representatives of United Nations Member States met at Rio+20, the following commitment was included into the outcome document of the conference: 'We resolve to promote education for sustainable development and to integrate sustainable development more actively into education beyond the United Nations Decade of Education for Sustainable Development' (UN, 2012c, para 233). This global commitment provides the mandate for building on and, indeed, expanding the work that has been undertaken within the DESD. In particular, Member States expressed the following:

> We recognize that the younger generations are the custodians of the future and the need for better quality and access to education beyond the primary level. We therefore resolve to improve the capacity of our education systems to prepare people to pursue sustainable development, including through enhanced teacher training, the development of sustainability curricula, the development of training programmes that prepare students for careers in fields related to sustainability, and more effective use of information and communications technologies to enhance learning outcomes. We call for enhanced cooperation among schools, communities and authorities in efforts to promote access to quality education at all levels.
>
> — UN (2012c, para 230)

At its 37th session in 2013, the General Conference of UNESCO consequently endorsed a proposal for a Global Action Programme (GAP) on ESD that would provide a global framework for ESD beyond 2014. Developed in close consultation with Member States and other stakeholders, the GAP has two objectives. The first objective is directed at the education sector, which is called upon to reorient education and learning so that everyone has the opportunity to acquire the knowledge and skills, values and attitudes that empower them to contribute to sustainable development (UNESCO, 2013e). The second objective emphasizes that learning our way towards sustainable development requires

the participation of all sectors of government and society, and not merely the integration of sustainable development into issues related only to education. Education and learning must be strengthened in all agendas, programmes and activities that promote sustainable development (UNESCO, 2013e).

As the DESD, MDGs and EFA goals expire, and the Post-2015 Development Agenda is defined, ESD is helping to reinforce, deepen and expand the debates and discussions on quality education.

Box 3.1.2.1: Suggested Actions

➤ **The momentum to advance ESD that has been created during the DESD should be sustained and intensified.** At the global level, all stakeholders should continue to work towards embedding sustainable development into the heart of education and learning and embedding education and learning into sustainable development. Inter-agency collaboration at the global level should be reinforced and continued as essential to moving the international discourse towards action.

➤ **While, by mid-2014, it is not yet clear what the final Post-2015 Development Agenda will encompass, it will be key to align the follow-up mechanism of the DESD (i.e. the Global Action Programme) with the Post-2015 Development Agenda and emerging sustainable development goals**. The GAP, to be launched at the World Conference on Education for Sustainable Development, 10-12 November 2014, Aichi-Nagoya, Japan), should be implemented as a 'concrete, tangible contribution to the post-2015 agenda' (UNESCO, 2013e).

3.2. Regional policy

> It is clear that there has been significant progress in the Latin American region in terms of environmental education, both in policy and in practice. There is a greater awareness of Environmental Education (EE) and ESD and, in countries such as Cuba, we can see the integration of EE and ESD.
>
> — UNESCO (2013o)

Much as global policy influences national commitments, regional processes also help to shape and guide policy development in countries sharing common interests and concerns at the regional or subregional levels. ESD-related policies and frameworks have varied considerably due to the salience of different sustainability challenges in each region, including poverty, climate change, agriculture and food security, water and sanitation, and sustainable consumption and production (UNESCO, 2009a). However, **the regional approach during the DESD has helped to identify important achievements across each region (reinforcing positive actions), as well as shared challenges and the need for collective actions to move forward**.

Overview of progress

Major regional initiatives reflect the reach of the DESD around the world. At the beginning of the DESD, high profile regional launches took place in all five UN regions, which brought together governments, international agencies, NGOs, and other stakeholders to serve to raise awareness about the DESD's objectives and express their support for the DESD. At the same time, regional strategies for the development and implementation of ESD were released. The regional launches and subsequent regional strategies and frameworks helped to contextualize ESD at a regional level; contributed to the debate on the role of ESD; and aided in the development of national ESD policies and plans. These regional launches, with national workshops and symposiums, proved vital to gathering stakeholder support and their direct engagement with activities and policy-related initiatives to advance ESD (Tilbury, 2007).

Sub-Saharan Africa region

The Africa region launched the DESD and its regional *Strategy of Education for Sustainable Development for Sub-Saharan Africa* (SSAESD) at the biennial meeting of the Association for the Development of Education in Africa (ADEA) in Gabon, March 2006. The Ministerial Statement of Commitment and Call for Support and Action on the SSAESD underlined the importance of ensuring that 'African cultures, knowledge systems, languages, ways of life are integrated into frameworks, programmes and activities developed within the DESD' and made a commitment to implement the DESD.

In the years since the launch of the UNDESD, the Southern African Development Community (a Regional Economic Community), and the Horn of Africa countries embraced ESD and supported multi-country collaborative programmes to strengthen ESD across countries in both environmental/SD ministries and education ministries with substantive policy and practice outcomes for ESD and SD. However, this approach to linking ESD to Regional Economic Community priorities across regional contexts has not been widespread in Africa and has been dependent on donor support.

Most recently, the African Ministerial Conference on the Environment (AMCEN) in 2012 produced the Arusha Declaration. Among its key resolutions is the development of an African Environmental Education and Training Action Plan (AEETAP) to strengthen environmental education (EE) and training in Africa, covering formal and non-formal education, capacity-building and information networking components (UNEP, 2012). Work has begun on the development of a draft of this action plan to be presented for AMCEN's consideration at a future date.

While these developments and the latest action plan are important steps in regional cooperation on ESD, a UNESCO African regional consultation in 2013 identified the following challenges: the need for strategic impetus on climate change, biodiversity and disaster risk reduction (DRR) education; insufficient integration of ESD in national development policies and sectoral plans (education, health, agriculture, etc.); poor inter-ministerial cooperation and coordination between different stakeholders on ESD implementation; the need to strengthen networks and increase synergies among stakeholders across the region; and inadequate mobilization of resources (UNESCO, 2014c). These challenges will need careful consideration and attention in the years to come.

Arab States region

The launching of the DESD activities took place in Bahrain (September 2005). At that meeting, experts and specialists concerned with education and training adopted the following definition of ESD as 'the acquisition and practice of knowledge, values and skills that ensure balance between the economic, social and environmental aspects of development, and the observance of both individuals and society development and progress in life' (UNESCO, 2008a).

At the beginning of the DESD, ESD was primarily focused on environmental issues and had a stronger presence in formal education than in non-formal/informal education (UNESCO, 2010a). At the end of the DESD, Sulieman and Karam have observed that ESD has begun to align with access, quality and gender equality issues in the Arab region (UNESCO, 2013f). The results of the UNESCO 2013 Arab States consultation reveal better coordination is needed between experiences with the DESD at the regional level versus at the national level. Equally, stronger coordination between Ministries of Education and Ministries of Environment and Sustainable Development will be necessary, going forward.

Asia and the Pacific region

The regional ESD Strategy entitled, *Working Paper: Asia-Pacific Regional Strategy for Education for Sustainable Development* (2005), served to help guide ESD throughout the Asia and the Pacific region. The development of the strategy helped to create and foster regional partnerships and networks and policy-related initiatives on ESD. The Asia-Pacific Cultural Centre for UNESCO (ACCU), the Asia-Pacific UN Inter-Agency Steering Committee for the DESD and the Asia-Pacific Regional Consultative Group, facilitated by UNESCO Bangkok, worked to direct the coordination of DESD efforts in the region (UNESCO, 2009c). These included a series of coordination and capacity-building workshops with a specific focus on policy-makers to enhance ESD leadership. Tools such as the ESD Astrolabe were developed to assist countries to take stock of ESD linkages in national policy, to map current ESD-related activities and to identify

key actors and their scale and scope of involvement in ESD (UNESCO, 2011b). The Japanese Government has been a major donor and supporter of cooperative regional efforts to promote sustainable development through education.

Since the Asia-Pacific Regional Strategy on ESD, there have been several subregional plans and strategies developed or revised to include elements of ESD. The Association of South East Asian Nations (ASEAN) developed an Environmental Action Plan (2014-2018) that was adopted by the ASEAN Environment Ministers in 2013 as the successor plan to the previous AEEAP 2000-2005. Environmental education has been defined in the Plan within the context of sustainable development as 'the process of helping people, through formal and non-formal/informal education, to acquire understanding, skills and values that will enable them to participate as active and informed citizens in the development of an ecologically sustainable and socially-just society' (ASEAN, 2014, p. 3).

The Pacific Framework for Action on the DESD was endorsed by the Pacific Education Ministers in 2006 to serve as a mechanism to assist in the implementation of ESD into education in the region (UNESCO, 2007). In 2007, the Ministers endorsed the ESD Pacific Regional Action Plan. A 2009 review of progress on the implementation of the ESD Pacific Regional Action Plan associated with the Pacific ESD Framework is illustrative, noting that in addition to complementing the Pacific Plan, the Action Plan also complements other regional and international initiatives including the MDGs, EFA, and the UN Literacy Decade, as well as other educational frameworks (Hiebert, 2013).

More recently, a roadmap for ASEAN to introduce sustainability education into universities by 2015 is being finalized. The roadmap will include the concept of a 'sustainability mindset' across all levels of education and will become one of the activities of South East Asian Ministers of Education Organization (SEAMEO).

Latin America and the Caribbean (LAC) region

The Latin America and the Caribbean region-wide strategy for the DESD was developed as an outcome of the conference, Building Education for Sustainable Development, held in Costa Rica in 2006, in collaboration with UNESCO and the Earth Charter. The resulting regional strategy is based on a shared vision for education policies to contribute to counteracting environmental damage and destruction while building just and sustainable societies through inclusive participation.

The strategy recognized the need for coordination with ongoing regional programmes such as the Regional Education Project for Latin America and the Caribbean (PRELAC) and the Latin American and Caribbean Program for Environmental Education (PLACEA). Within the framework of the PRELAC, the Ministers of Education and other high-level education stakeholders have defined the guiding principles and roadmap for the regional Post-2015 Development Agenda to include a predominant role for education. Among the emerging issues for education in LAC, the document identifies enriching education systems with content and methods on sustainable development, green practices, climate change and disaster risk reduction.

During the DESD, the Latin American and the Caribbean's history with environmental education (EE) has provided the foundation from which to promote education as a key tool for sustainable development. The inclusion of ESD is closely linked to advances in EE (UNESCO, 2007; 2009a; 2012b). In the majority of countries in this region, the term EE continues to be used more widely than ESD. However, there is a growing emergence and use of both EE and ESD in policy-related documents, despite the sense of caution surrounding the ideas and practices of ESD. Across the LAC region, key informants believe that, while the environmental dimension of ESD has received considerable attention, the social and equity aspects are still not well elaborated. For those who continue to emphasize EE outside of an ESD framework, UNESCO is working to strengthen contacts and communication to reduce this tension and shift focus to the communalities of EE and ESD, promoting a broader vision of transformative, quality education for a sustainable present and future.

Europe and North America region

Under the auspices of the United Nations Economic Commission for Europe (UNECE), a regional strategy was prepared to facilitate the introduction and promotion of ESD, emerging from the Environment for Europe process in 2003.[3] The

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3   See http://www.unece.org/environmental-policy/areas-of-work/education-for-sustainable-development-esd/about-us/the-strategy.html

UNECE Strategy for ESD was adopted by education and environment ministries at the Vilnius High Level meeting in 2005. The Europe and North America region was the first to officially adopt a strategy for the DESD.

Since the adoption of the strategy, the UNECE has played an important catalytic role in promoting ESD across the UNECE region. The UNECE brings together 56 countries located in the European Union, non-EU Western and Eastern Europe, South-East Europe, the Commonwealth of Independent States and North America. An intergovernmental steering committee that brought together education and environment ministries was established and a comprehensive monitoring and evaluation mechanism was put into place under the UNECE Strategy for ESD.

During the 10 years of the DESD, the UNECE reports significant advancements from policy to the practical in its second evaluation report, *Learning from Each Other: Achievements, Challenges and Ways Forward*, with 36 out of 56 countries involved at various levels, from initial endorsement to implementation. **A majority of UNECE reporting countries have accomplished or are close to finalizing and putting in place policy, regulatory and operational frameworks that support ESD**. Serious attempts have been made to integrate ESD into the content and process of formal education, resulting in a considerable coverage of ESD-related key themes, learning outcomes, methods and strategies (UNECE, 2012c). Particular note should be made of the work done by UNECE on indicators for ESD and on educator competencies[4] as important building blocks for reorienting education systems.

The Council of the European Union reinforced these efforts in 2010 by inviting EU Member States to take appropriate measures at the relevant level of responsibility – local, regional or national – in order to encourage the further development and implementation of embedding sustainable development in national, lifelong learning strategies aimed at citizens' personal, social and professional development; mainstreaming sustainable development into curricula where appropriate; and to promote whole-school approaches (CEU, 2010, p. 5).

Appreciating the progress demonstrated by the UNECE, countries in the Mediterranean are drawing from the UNECE strategy as a blueprint for their own advancement of ESD (GME Q UNECE, IAC). In 2013, more than 40 representatives of ministries of education, ministries of environment, regional and international organizations and NGOs from 14 Mediterranean countries met in Croatia to work on the final draft of the Mediterranean Strategy on Education for Sustainable Development (ESD). During the meeting, ESD was recognized by the Croatian Minister of Science, Education and Sports, 'as an indispensable tool in the process towards achieving sustainable development in the region' (Horizon 2020, 2013). The Mediterranean Strategy on ESD (MSESD) was formally and unanimously endorsed by the 43 Ministers of Environment of the Union for the Mediterranean on 13 May 2014.

Implications for the future

While progress across the regions varies widely, the importance of regional processes cannot be underestimated. They have, over the years of the DESD, contributed to the building of shared visions and commitments to ESD, recognized the foundational work on EE and broadened the scope to include ongoing efforts to strengthen EE as a contribution to sustainable development objectives; aligned and reinforced other education strategies within the regions; built capacity through regional and subregional initiatives; and provided an arena for sharing achievements as well as the identification of challenges that will need to be addressed in the coming years. Most importantly, they encouraged and supported the development of ESD policy and planning at the national level in many countries.

Box 3.2.2.1: Suggested actions

➤ **Engagement with regional agencies and the development of regionally and subregionally focused programmes for building policy capacity should be enhanced in the coming years.** Regional approaches to policy guidance allow Member States to approach ESD in the context of regional or subregional needs and capacities. Recognizing and securing the commitment of regional intergovernmental agencies has been a highly effective method to reinforce global ESD frameworks and ensure that they are adaptable to regional and subregional issues.

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4   See UNECE Educator Competencies work at http://www.unece.org/fileadmin/DAM/env/esd/ESD_Publications/Competences_Publication.pdf

3.3. National/subnational policy

The setting of ESD policies and frameworks at the national level establishes a broad statement of purpose and, by providing mandates, directives, encouragement and support for ESD implementation, creates the space needed by stakeholders for action. While responsibility for education policy varies considerably from country to country, in general such policies relate to curriculum (teaching and learning), teacher accreditation and assessment, professional development of pre-service and in-service teachers and school-community relationships. ESD policy formulation may also include policies in other domains, outside of the formal education system and ministries of education, to guide the acquisition of knowledge, skills and values necessary for sustainable economic development, social and environmental responsibility.

It is challenging to give a full account of, and to adequately recognize, the incredible diversity of approaches to ESD policies, their effectiveness and their outcomes within the scope of this chapter. Each national context is unique, reflecting the complexity of the education system within the country, the priorities and challenges to be addressed, the availability of resources, the experience and capacity, as well as the different mechanisms, including those that involve participatory and consultative approaches.

The following section outlines some of the achievements and lessons from Member States during the DESD, the role of leadership and coordination to reorient education policy towards sustainable development, as well as the deployment of a range of policy instruments to sustain momentum throughout the system. **Progress on creating the enabling environment for ESD through a range of policy interconnections and instruments is one of the most promising outcomes of the DESD.**

Overview of progress

Mechanisms to organize and coordinate ESD efforts have been established in at least half (50%) of the countries that responded to UNESCO's questionnaire. Member States report having a national ESD coordinating body that brings together a broad group of actors. Correspondingly, 80% of Member States have appointed an ESD focal point. Two-thirds (66%) report having a national ESD strategy or plan; and half of the countries have included ESD in relevant policies (50%). In some cases, these developments are fairly recent; for example, Ireland's ESD Action Plan was just released in 2014.

Some Member States have moved beyond policy support for ESD to instituting a legal framework (29%). The specific polices, strategies, frameworks and plans vary considerably within and across regions and include: establishing national or interdepartmental bodies to coordinate ESD policies and implementation; creating new ESD policies or including ESD in existing policies; incorporating ESD in legal or regulatory documents; developing tools and curriculum frameworks that include ESD; and allocating specific budgets to ESD actions and activities.

Figure 3.3.1.1: ESD mechanisms in Member States
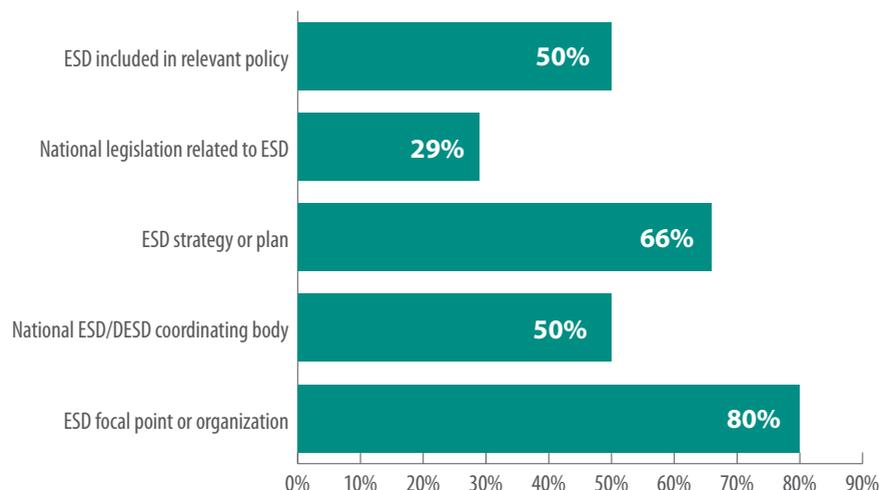
One of the more influential instruments for developing and advancing national/subnational ESD policy has been the creation of national coordination bodies, either by or with the support and involvement of governments. These coordination mechanisms have supported consultations and engagement with a diversity of stakeholders across the education system, from government entities to schools and communities, and have often included policy-makers and stakeholders from other sustainable development domains, including health, environment, culture and economic development. By sharing the process of policy development with broader interests, these coordination mechanisms have served to inform and enhance education policy and secured a greater likelihood of adoption and implementation. For example, the Namibia National ESD Task Force brought together a multi-stakeholder process to validate the country's Education for Sustainable Development Strategy (2009 – 2014) (UNESCO, 2013g). As a result, the strategy was endorsed and released by the Minister of Education in 2009.

In many countries, these national coordination mechanisms have demonstrated themselves to be important instruments not only for advancing ESD policy but also for achieving implementation at local and national scales. Given their unique characteristic of engaging multiple stakeholder groups, they are discussed in more detail in Chapter 5: Stakeholders and partnerships.

National sustainable development policies drive the adoption of ESD

At the end of the DESD, one of the most encouraging signs of progress at the national level has been the growing intersection and alignment of sustainable development objectives and education policy's role in contributing to their achievement – truly, education *for* sustainable development. In reporting to UNESCO, nearly a third of Member State respondents (30%) across all regions described national sustainable development visions, goals and strategies as drivers for ESD policy formulation and adoption. This is consistent with other trends aligning education with sustainable development policy. Recent research by ILO-CEDEFOP appears to suggest that the existence of sound environmental policies creates a significant driver and an enabling environment for the advancement of TVET policies and programming (Hofman, 2012). The second Global Report on Adult Learning and Education (ALE) found a similar connection: in 33% of 141 country reports, the national sustainable development strategy included references to adult education as a necessary condition for the achievement of sustainability (UNESCO-UIL, 2013).

Countries that have prioritized sustainability in national policies and planning have, in some cases, provided the context and mandate to advance ESD, and served to inspire and guide educational leadership. As the DESD progressed, efforts to integrate education into national sustainable development policies and plans increased. There are numerous examples of Member States anchoring their ESD efforts in national sustainability policies, such as in Qatar, where ESD is seen to be an implementation mechanism for Vision 2030, which is Qatar's national sustainable

development strategy. 'Qatar's vision for 2030 concentrates on ESD for conservation of the non-renewable natural resources for the benefit of the next Qatari Generation.' (GME Q Qatar, MS).

In the case of Croatia, the 2011 Action Plan for Education for Sustainable Development has been developed as a tool for implementing the National Strategy for Sustainable Development. The plan was developed in close cooperation between government departments and relevant stakeholders. Further, educational mechanisms are being developed through other sustainable development action plans, such as the Action Plan on Environmental Protection, the Action Plan for the Protection of the Adriatic Sea, Coast and Islands and the Action Plan on Sustainable Consumption and Production (GME Q Croatia, MS; UNECE, 2012a). Two examples of Member States where sustainable development visioning, goals and strategies are setting priorities for ESD are outlined in greater detail in Boxes 3.3.1.1 and 3.3.1.2.

Box 3.3.1.1: Mauritius – Profile of success in embedding ESD into SD policies

The Maurice Ile Durable (MID) policy was introduced in 2008 with the objective of making Mauritius a world model of sustainable development by 2020. Education is one of its five pillars, with a multi-stakeholder working group put in place to integrate ESD into all levels of education. The goal is to reorient the education system towards sustainability, build capacity at all levels and strengthen awareness of key issues (Hiebert, 2013). As Mauritius reports, ESD is now 'part of the National Curriculum Framework and because of the MID societal project, ESD is being addressed by many formal and non-formal institutions/organizations' (GME Q Mauritius, MS). As a result of this policy, different ministries such as the Ministry of Environment and Sustainable Development and the Ministry of Education and Human Resources Development have come to cooperate more closely for a more integrated approach. Now already a UNESCO Climate Change Education for Sustainable Development (CCESD) pilot country, Mauritius could become an exemplar country for ESD when the MID policy is fully implemented.

Source: Hiebert (2013); GME Q Mauritius, MS.

Box 3.3.1.2: Costa Rica – Profile of success in embedding ESD into SD policies

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

Source: Tsuneki and Shaw (forthcoming).

The alignment of national sustainable development goals and strategies with education policy can drive the reorientation of education systems towards sustainable development. In a growing number of countries, sustainable development policy provides direction and courses of action for ESD as a means to address the economic, social and environmental challenges and opportunities that face their citizens and are shared with other countries around the world. Education policy-makers are both responding to these mandates and working proactively to ensure that education is embedded in national sustainability policy and planning.

Nevertheless, many Member States have not reported to UNESCO on the broader context of sustainable development policies in their countries, and whether and how it is framing and supporting work on ESD. As Jordan reports, there is a need at the national level for more 'focus and concentration on building connection between education inside the classroom and sustainable development principles' (GME Q Jordan, MS). A more detailed exploration and analysis of how to strengthen this growing policy convergence at the national level will be warranted, particularly as countries begin to respond to new, post-2015 goals and the place of education within those goals.

Based on the experience of a cross-section of Member States, it would appear that **an important enabler for advancing ESD is the strength of a country's commitment in general to sustainable development, combined with political and administrative support mechanisms established across government departments**.

National/subnational education policies that address sustainable development

At the national level, many ESD policies in primary and secondary education gain legitimacy through their links with national educational priorities. In Indonesia, the ESD framework was developed to foster democratic learning approaches (UNESCO, 2011c). ESD values in Australia were embedded in the subjects that promote multicultural and indigenous education (de Leo, 2012). In Togo, the educational policy framework (*Lakalaka*) is grounded in national culture and includes a new ESD-oriented curriculum entitled *Quality Education for a Sustainable Future* (Hiebert, 2013). In such contexts, ESD policies inform and respond to national/local issues of educational quality, relevance, equity and inclusion. Many governments have also used ESD as an umbrella policy framework to integrate so-called 'adjectival' educations in primary and secondary schools: climate change education, health education, peace education, environmental education, human rights education, HIV and AIDS education, multicultural education, and so on (UNESCO, 2011c). As education policy-makers 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 educational policy, curricula, learning outcomes and skills attainment across all levels of education.

In China, the Ministry of Education issued its first guiding policy on ESD in 2003. Several educational approaches have been adopted since then to facilitate the implementation of ESD, including the integration of ESD values into school philosophy, curriculum development, capacity-building of the teachers and educators, ESD pedagogical approaches, ESD thematic activities, and monitoring and evaluation (Han, forthcoming).

The more recent National Education Outline (2010–2020) in China calls for the integration of a higher level of creative thinking and problem solving, action research and social participation – all of which are ESD-related learning processes. These ESD policy discussions and educational reforms have generated a large amount of discussion on the Chinese education system and on the national development trajectory in general amongst students, teachers and policy-makers alike. The DESD, in particular, was noted as having influenced some of these changes. For China, both the top-down and bottom-up approach to policy development and plans were fostered to engage schools, communities, universities, research centres, enterprises, NGOs, government and other organizations in promoting ESD collaboratively (Han, forthcoming).

Box 3.3.1.3: Finland – Profile of success in embedding ESD in education policies

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

> Our aim is to enhance pupils' coherent identity and positive self-conception, develop their generic competences and subject-specific knowledge and skills and, through that, help pupils to develop themselves as humans and citizens who are able and willing to live in a sustainable way and build a sustainable future.

> — Irmeli Halinen, Finnish National Board of Education

An external evaluation revealed that ESD might not have been sufficiently integrated into sustainable development steering policies and documents. However, more recently the Finnish National Commission for Sustainable Development officially accepted the document *Society's Commitment to Sustainability*, prepared by a wide-ranging strategy group. This includes a statement that 'sustainable development will be integrated into primary education, education of all fields and lifelong learning' – a positive sign of education being integrated further into future SD policies in Finland.

Source: UNECE (2014a).

Box 3.3.1.4: Kenya – Profile of success in embedding ESD in education policies

Kenya's ESD Implementation Strategy, adopted in 2008, acknowledges that in order to have 'quality education and training for development', education should promote the development of productive and socially responsible individuals. This ESD strategy was aimed at promoting teaching and learning that inculcates appropriate values, behaviour and lifestyles for good governance and sustainability among other focuses (National Environment Management Authority, 2008).

> This was a key target for the country to guide the holistic implementation of ESD across sectors and stakeholders in the country. Intense participatory process took place that involved regional consultative fora and a final national validation workshop.
>
> — (GME Q Kenya, MS)

More recently, Kenya formulated a national ESD Policy Framework in 2012 through the Kenya Institute of Curriculum Development (KICD) with the goal of enhancing sustainable development through transformative curriculum support materials, (KICD, 2012). ESD has also been entrenched in the National Education Sector Programme (NESP) to be implemented over five years (2013–2018), and is captured in Vision 2030, Kenya's roadmap to the realization of sustainable development, showing the importance of alignment with national sustainable development objectives.

Source: National Environment Management Authority (2008); GME Q Kenya, MS; KICD (2012).

These profiles of success demonstrate how ESD can become an implementation mechanism for sustainable development in education systems. However, not every country has experienced success with embedding ESD in education policy. A few Latin American countries (such as Uruguay and Bolivia), in their response to the UNESCO Questionnaire, mentioned a lack of a national policy related to ESD/EE as being a significant barrier to reorienting their education systems. Guyana further notes that while the vision might be present, the articulation of policy that can be implemented, 'with measurable objectives' is absent (GME Q Guyana, MS).

In principle, ESD challenges policy-makers to consider how education can contribute to greater sustainability in the economic and social sectors of society, as well as to environmental protection. In this regard, ESD policies and initiatives differ significantly from past educational reforms, which rarely sought to integrate educational policies with social, cultural and economic ones (UNESCO, 2012b). The underlying logic of the ESD conception is clear: **fundamental behaviour and attitude changes, achieved through integrated policies, best promote environmental integrity, economic viability and a more just and equitable society** (UNESCO, 2005a).

High-level political leadership and coordination of ESD

Leadership within and across the education system is essential to sustain efforts and ensure ESD objectives are adopted and moved into action. At a subnational level, Scotland and Manitoba stand out as examples where high-level political leadership, coordination with stakeholders and accountability helped these jurisdictions to set the vision and goals for the promotion and adoption of ESD in educational policies and plans.

Box 3.3.1.5: Scotland, United Kingdom – Profile of successful leadership

As a result of successive Scottish Governments' commitment to the DESD, Scotland's Curriculum for Excellence has sustainable development, global citizenship and outdoor learning identified as important cross-contextual themes. In 2012, thirty-one policy recommendations to further embed these themes in school education were made by a working group convened by the Government which accepted all of them in March 2013. As part of this, sustainable development education, global citizenship and outdoor learning were brought together under the name Learning for Sustainability and made an entitlement for all learners.

> Learning for Sustainability provides a strategic agenda which needs leadership at all levels to remove barriers and enable a coherent whole school approach that encompasses the curriculum, campus, culture and community of the school. The Scottish Government supports the approach recommended and looks forward to working with partners to support implementation.

> — Minister for Learning, Sciences and Scotland's Languages, Scottish Government (2013)

Source: Learning and Teaching Scotland (2011); Donaldson (2011); The Scottish Government (2012).

Box 3.3.1.6: Manitoba, Canada – Profile of successful leadership

In Manitoba, ESD is a priority action area of the government and has been embedded in the overall purpose of primary and secondary education. It is now government policy 'to ensure that all Manitoba's children and youth have access to an array of educational opportunities such that every learner experiences success through relevant, engaging and high quality education that prepares them for lifelong learning and citizenship in a democratic, socially just and sustainable society'. This statement is included in the mission of the provincial Ministry of Education and Advanced Learning.

In response to this policy commitment, ESD has been integrated into the curriculum from kindergarten up to 12th grade with specific learning outcomes identified in science, social studies, health and physical education. Building the capacity of educators and school leaders, as well as dedicated funding to ensure the development of sustainability practices, principles, programmes and partnerships, helps schools to embed sustainability into their classrooms, operations and management.

More recently, stronger interdepartmental coordination and leadership resulted in the inclusion of ESD in Manitoba's strategic document, *Tomorrow Now – Manitoba's Green Plan* (released in 2012), which provides guidance for the provincial government on sustainable development policy up until 2020.

> Political will is really important because it's part of showing leadership and it's part of creating an organizational climate at large.

> — Gerald Farthing, Manitoba Deputy Minister of Education and Advanced Learning.

Source: Buckler and MacDiarmid (2012).

In all ESD policy development processes, one of the most critical success factors during the DESD has been leadership – both at the national level, in setting visions and goals for sustainable societies – and at the individual level, in promoting the adoption of ESD in departmental and nationwide strategies. A key lesson from the DESD is therefore that **leadership, within and across the education system, is essential to sustain efforts and ensure ESD policy objectives are adopted and moved into action**.

Perceptions can differ among policy-makers and political leaders about the nature and importance of ESD. Where political support among national authorities is strong (and consistent with shared visions for national sustainable development), the likelihood of ESD implementation improves significantly – from developing ESD frameworks and national strategies to implementing school-based programmes and teacher training reforms. UNESCO reviews of the National ESD experiences from Costa Rica, Morocco, South Africa, Sweden and Viet Nam (UNESCO, 2013h), among others, suggest that political support and leadership from the national government is vital for driving ESD processes.

Interdepartmental coordination is key

In some of the examples described above, ESD policy goals and principles were organized as a type of interdepartmental governmental cooperation. Typically, this involved coordination between the Ministry of Education and the Ministry of the Environment or Development. The second evaluation report prepared under the UNECE Strategy for ESD highlighted critical governance challenges, and most importantly the need to improve communication and coordination among governmental ministries and the design of intersectoral ESD programmes (UNECE, 2012c). Belgium, in particular, observes that 'the coordination and cooperation task has not always been an easy process' (GME Q Belgium, MS). The idea put forward in Belgium's ESD Implementation Plan was to create a 'cooperative network' of policy advisors from various departments, working together as a central liaison body for all stakeholders, promoting ESD in their respective policy domains:

> Yet, 'the policy process proved that this is something that cannot be established top-down through creating structures and making agreements in advance. In practice, collaboration, trust, and connection turn out to grow slowly, bottom-up, through jointly realising concrete initiatives. A more intense collaboration between the Education and Training Department and the Environment, Nature and Energy Department arose [as a result].'
>
> – (GME Q Belgium, MS)

Uganda also confirmed in its report that 'coordination of ESD at a ministerial level is important for successful implementation of the programme' (GME Q Uganda, MS).

Use of policy instruments to advance ESD

Where there is political will and leadership for the reorientation of education policy towards sustainable development, a number of instruments are used by Member States to guide the implementation of policy intentions. These have ranged from mandated approaches such as legal frameworks to soft policy approaches that encourage policy adoption within and beyond the immediate influence of government agencies.

Mandated approaches

A number of countries have chosen to institute a legal framework for ESD – laws, regulations and standards – to mandate the adoption of ESD principles across the education system and secure compliance with government objectives. Over a quarter (29%) of responding Member States have reported the integration of ESD into national legislation. Depending on the scope of the Ministry of Education's authority, such rules might affect only formal education curriculum to the end of secondary levels, or might also direct ESD adoption within individual school operations, teacher training institutions and institutions of higher education. Some of the legal frameworks described in the Table 3.3.1.1 were in place prior to the DESD, although actions during the DESD have contributed to the implementation of the frameworks.

Table 3.3.1.1: Examples of types of legislation, curriculum directives and standards related to ESD (national/subnational)

National/ subnational	Legislation / Directive / Standard	Area of education affected
Brazil	The Constitution of Brazil (1988); the directives on the National Policy on the Environment (1981) and the National Policy for Environmental Education (1999)	The Brazilian Constitution (1988) and the National Policy on the Environment (1981) have provided leverage for institutionalizing environmental education (EE) and secured for Brazilian society the right to universal access to EE. The National Policy for Environmental Education (1999), a pioneer in Latin America, was designed to complement and clarify the principles and guidelines necessary for practice. This law is regulated by the two more recent resolutions: the National Environment Council (CONAMA/nº 422/2010) and the National Education Council (CNE /nº 02/2012).
Cambodia	The Law on Education enacted by the National Assembly on the 19th of October 2007	ESD has been embedded as a fundamental component of the education programme along with morality education and civic education on how to live together for peace.
India	The Supreme Court of India made EE compulsory in 1991. The government issued a directive in 2003 reinforcing the need for it to be mainstreamed	The new directive resulted in the 2005 National Curriculum Framework, which seeks to reorient education and make it more relevant to students' lives. It situated the teaching and learning process in a social, cultural and global context, which reflects ESD concepts.
Japan	Revision of the Act on the Promotion of Environmental Conservation Activities in 2011	The Act on the Promotion of Environmental Conservation Activities through Environmental Education, etc. revised in 2011 and the basic policy based on the Act, amended in 2012, permit various policies of environmental education to be implemented further, adopting the concept of ESD.
Kazakhstan	Environmental Code adopted on January 9, 2007	Article 25 of the Environmental Code is devoted to eco-education and awareness raising, and special advanced professional training. The law defines the goal of environmental education and awareness raising as 'development of an active civil attitude and eco-culture in the society, based on the principles of sustainable development'. The legislative basis for ESD implementation in Kazakhstan has also been defined by eco-legislation. Legislative bases are clearly stated with reference to environmental education and awareness raising, covering all levels of primary, secondary, formal and informal education.
Scotland	August 2013, General Teaching Council for Scotland (GTCS), the regulatory body for teachers, revised their Professional Standards to include ESD	The revised Standards have Learning for Sustainability as a core component. In order to teach at a Scottish school, a teacher must be registered with the GTCS and, in order to register, a teacher must demonstrate that they meet the Professional Standards. All teachers must maintain their registration by re-accrediting every five years. As a result, all teachers are expected to 'actively embrace and promote the principles and practices of sustainability in all aspects of their work' (GTCS, 2012). There are seven universities in Scotland that have teacher education programmes and these must be accredited by the GTCS in order for graduates to be eligible for registration as teachers. These courses have to seek re-accreditation every five years by demonstrating how they equip their graduates to meet the Professional Standards.
Sweden	1992 Higher Education Act	According to the Higher Education Act, all activities in higher education institutions 'have to promote sustainable development, which means that current and future generations are secured a healthy and good environment, economic and social welfare and justice'. Furthermore, sustainable development is named as one of the examination goals that the students in teacher education should have obtained when finishing their education. Thus far, the Swedish Higher Education Authority has limited resources to follow up on how HEIs comply with the regulations concerning ESD (GME Q Sweden, MS).

Source: GME Q Sweden, MS; National Council for Teacher Education (2009); Council for the Development of Cambodia (2007); Trajber (2013); Greensalvation (2008); Japan Ministry of Education, Culture, Sports, Science and Technology (2014); GTCS (2012); Watson (2014).

Having a concrete national legal basis for ESD is seen as a major achievement for these Member States at the end of the DESD, but the existence of rules and directives does not necessarily lead immediately to change. In Indonesia, various legislations that explicitly mandate and manage ESD can be found within the Strategic Plan 2010–2014, the Joint Decree between the Minister of Environment and Minister of Education in 2010, and the Ministry Regulation on Education Quality Assurance System. Nevertheless, 'funding for the implementation of ESD programmes and activities does not exist yet' (UNESCO, 2011d, p. 19).

Evidence at the end of the DESD suggests that laying the legal foundation for ESD may be forceful in driving adoption of ESD, but supporting policy instruments such as financial resources, capacity-building and consultations are sometimes lacking and are certainly necessary to move stakeholders towards and beyond, compliance.

Soft policy approaches

In the absence of formal legislation, but as a means to implement curriculum directives and influence their education system to change, many Member States have chosen to put in place pathways that are persuasive in nature, and provide guidance and options to education stakeholders. Both China and Kenya have fostered not only top-down, but bottom-up approaches to policy development, putting in place plans to engage schools, communities, universities, research centres, enterprises, NGOs, government and other organizations to promote ESD collaboratively. Kenya acknowledges that multi-stakeholder engagement, ranging from teachers, education officers, students, school principals, inter alia, has laid the foundation and will be key to tracking ESD progress (GME Q Kenya, MS). These 'soft policy' approaches may include action plans that stimulate commitment, encourage involvement, and provide guidelines for ESD inclusion and voluntary targets for performance.

In Japan, the Ministry of Education (MEXT) established ESD as an important principle for education in its 2008 Basic Plan for the Promotion of Education, and also included ESD in The Courses of Study, which establish the curricula standards for schools. In order to build support for these policy directives and engage all stakeholders in advancing ESD policy, the government has taken a soft policy approach by 'promoting ESD programmes, holding seminars of ESD methods for teachers and NGOs and symposiums about ESD, and managing an official website for ESD as measures to communicate the incorporation of ESD into curriculum standards' (GME Q Japan, MS).

In Jordan, all higher education institutions have been encouraged by the Ministry of Higher Education to revise their degree programmes, courses and requirements to address urgent issues such as sustainability. These suggestions have resulted in changes within HEIs policies and programmes, including an increase in the attention to teacher education programmes. In response to this government influence and university response, the faculty of educational science at Hashemite University has revised its degree programmes and the courses required for each degree to address environmental and sustainability issues.

Rwanda has taken a multi-stakeholder approach to the development of ESD in order to engage all stakeholders, including those beyond government, and drafted objectives that could be shared and adopted by all. The national Environmental Education for Sustainable Development: A Strategy and Action Plan for 2010 – 2015 was developed through a consultative process involving a wide range of key stakeholders 'to ensure an inclusive and high level national participation in the implementation of the strategy' – a soft policy approach to ESD. Each objective of the strategy engages and encourages a major stakeholder group, extending responsibility for the adoption of ESD policy well beyond government. (GME Q Rwanda, MS; REMA, 2010, p. v).

South Africa has learned that soft policy approaches are important to frame, support and scale up grassroots efforts to advance ESD. In that country, ESD processes have grown and evolved from the ground up through a strong environmental education practice-based community that has extensive knowledge and experience of supporting active learning, working with environment within curriculum and working with educational and environmental change. But despite some success with integration into various policies and strategies in South Africa, the absence of a national strategy and national coordinating body that engages all stakeholders with the policy-makers has adversely affected the implementation and uptake of ESD (UNESCO, 2013h).

In addition to mandated approaches, soft pathways can encourage and support system transformation. In most circumstances, both approaches will be needed, although even when used together they face limitations and can be slow to achieve results. Chile, for example, has made important progress by adopting several key ESD policies,

embedding climate change education into the formal school curriculum, enhancing teachers' ESD competencies and encouraging climate change awareness among citizens. But Chile, like Indonesia, have plans in place demonstrating progress, they have not been binding or supported with sufficient human and financial resources' (UNESCO, 2011c). **Mandated and soft policy instruments need the additional instruments of capacity-building and financial resources to help advance policy change**. In considering the deployment of a range of policy instruments, the time dimension should also be kept in mind. As Latvia reminds us, 'One decade is enough to start the system of ESD but it takes time for educational institutions to make the system work' (GME Q Latvia, MS).

ESD is similar to all significant education reforms in that it needs not only policy but clarity of vision, training, curriculum mandates, funding, targets, monitoring and continuous improvement schemes to address local adaptation and learning from new insights.

Implications for future actions

The past decade has witnessed an increase in the inclusion of ESD into sustainable development and educational policies and frameworks. Much evidence attests to the fact that ESD increasingly animates national educational polices and is often mentioned in discussions on future policy goals in education and development. In some cases, the national education policies tend to perceive ESD in rather narrow terms – that is, specifically, to environmental issues. That said, many more countries are aligning ESD policies with broader sustainability issues in the social, cultural and economic spheres. The enormous diversity of ESD-related policies and frameworks that exists underscores the fact that, when it comes to models of ESD, one size will not, and should not, fit all.

Box 3.3.2.1: Suggested actions

➤ **Actions to foster policy coherence and coordination between national sustainable development and education should be a significant priority in the years that follow the DESD.** Interdepartmental governmental cooperation will need to be strengthened; this could be done through the establishment or enhancement of an ESD interdepartmental committee, national coordinating body, multi-stakeholder working group or platform.

➤ **ESD policy articulation in education, by itself, does not appear to lead to transformation.** Evidence suggests that the inclusion of ESD into both education and sustainable development policies, together with a combination of mandated approaches that provide directives and soft policy approaches that engage, encourage and inform, are all needed to fast-track change in education systems. Building the capacity of national and subnational education and sustainable development policy-makers should take into consideration the complexity and effectiveness of such a hybrid approach to policy development.

➤ **Further attention must be given not only to policy but to the instruments and mechanisms for advancing policy implementation, particularly in developing countries.** Delivering results will require further investment including funding and capacity development to strengthen education systems for supporting sustainable development.

3.4. Local policy

> The UNDESD has been a useful framework for advancing national and international debates and formulating and implementing programmes of action at the level of schools, local organizations, local governments, universities, national governments and international agencies. It has created useful points of reference, comparison and competition for strengthening ESD practice, research and policy development.
>
> — (GME Q Sweden, MS)

ESD is grounded in local-level challenges, experience and actions, requiring the participation of local-level authorities. As the level of governance closest to citizens, they play a vital role in educating the public to advance sustainable development within their communities (UN, 1992). Authorities at the local level establish social, economic and environmental policies and regulations, oversee planning processes, construct and maintain infrastructure, and assist in implementing national sustainability policies.

The governance bodies most closely involved in ESD should include both municipal councils and offices (supporting non-formal education, training and public awareness) and local school boards and schools (within the context of formal education). At the end of the DESD, a number of important observations can be made about the local policy context for ESD.

Overview of progress

Within formal education, lessons from the DESD have demonstrated the importance of community engagement in helping students to learn about local issues and to contribute to local solutions. In some countries, national policy-makers have established curriculum directives that lead towards and support the exploration and application of local issues, and this has created the space for local schools to set ESD policies for curriculum enhancement. The education system in Thailand, for example, enables individual schools to locally develop up to 30% of the total curriculum content. This provides a legitimate opening for schools to set their local ESD policies with respect to enhancing curriculum in ways that are relevant to their own context, including issues regarding sustainable lifestyles and livelihoods. It also provides opportunities for teachers from different schools who participate in ESD projects to learn from each other and collaborate in designing ESD initiatives (Didham and Ofei-Manu, 2012).

National education policies and sustainability policies can encourage the formulation of ESD policies at the local level

During the past decade, policy-makers in China adopted a new curriculum, which has mandated content at both the national and the local school level. Similar to Thailand, the policy has allowed local schools to determine about 10% of the total curricular hours. Many schools have chosen to integrate ESD programmes into their curriculum and have gone beyond the mere teaching of a select number of ESD topics towards embedding core values of ESD across the curriculum, known in China as the Four Respects: Respect for All, Respect for Cultural Diversity, Respect for Nature and Respect for Science (UNESCO, 2009c). Recognizing the importance of local-level empowerment, the Chinese National Working Committee on ESD (CNWCESD) has established ESD experimental districts in several municipalities, such as Beijing, Shanghai and Guangzhou, working with these districts 'to establish local ESD organizations to help them uplift education quality and innovate educational teaching models' (GME Q China, MS).

While the above examples show how *education* policy can create the space for local-level ESD adoption, the influence of national or subnational *sustainability* policies can also both leverage and encourage ESD change within local-level education systems. Under the British Columbia, Canada Greenhouse Gas Emissions Targets Act, all 60 school

districts in the province are required to report their carbon emissions and provide information on their actions toward carbon neutrality. This includes reporting on efficiencies and upgrades in school infrastructure, such as facility heating and cooling systems, transportation and supplies. Equally interesting, school districts are also invited to develop and document programmes that address education, awareness and engagement for staff, teachers and students, as well as parents. The provincial policy is, in effect, stimulating local policy and practice by encouraging the creation of programmes ranging from the implementation of sustainability-related curriculum to behaviour change campaigns (GME Q Canada, MS).

Capacity-building partnerships between local level authorities and national level authorities can also prove to be very effective. In Viet Nam, for example, collaboration between local-level and national authorities on ESD capacity-building and training is taking place to support the development of participatory community action and school preparedness plans, addressing issues related to disasters, climate change and biodiversity conservation, to strengthen the link between school and community. Local media have also received training in these areas with a gender-sensitive focus, enhancing their capacities to report on these issues through production and broadcast of various media outputs.

ESD-related initiatives to inform and engage local citizens in sustainability planning and action are leading to ESD-related policies

Among other striking examples, in Italy, a national network/programme called INFEA (Environmental Education, Information and Training) is being coordinated and supported by regional governments with the aim of fostering the creation of ESD structures at a local level, through a bottom-up approach. Significantly co-funded and promoted by the Italian Ministry, INFEA is based on a framework agreement (Quadro Programmatico) promoted by the Ministry of Environment and regional authorities within the Permanent Conference for the relationship between State and Regions. As a result, regional authorities coordinate and provide financial support for ESD activities implemented locally by NGOs, universities, schools, training centres, parks, and regional environmental agencies, including ad hoc Environmental Education Centres that closely collaborate with schools. (GME Q Italy, MS)

Going one step further, the city of Hamburg (Germany) strives to include its citizens in the Hamburg Learns Sustainability initiative, which covers all fields of education and is organized in six fora (elementary education, school, vocational training, universities, further education and informal learning). A Plan of Action, annually discussed by a round table of ESD stakeholders, covers 180 best practice measures relating to the local, national and international goals of the UN Decade. As Hamburg's example demonstrates, local policies that are deliberately formulated to engage local schools and other educational institutions in meeting local authorities' sustainability commitments can have powerful results (Free and Hanseatic City of Hamburg, 2014).

Barcelona (Spain) stands out with respect to its long-standing work related to ESD. In 2002, the City Council, as well as 800 local organizations, signed a Citizen Commitment to Sustainability, which has served as the guiding policy for the city's Local Agenda 21 planning. The signatory local organizations were then provided training, networking and communications opportunities in both formal and non-formal education by the City Council. This initiative has complemented Barcelona's School Agenda 21 Program (PA21E), operating within the larger framework of the City's Agenda 21, which involves educational communities in identifying local sustainable development problems, suggesting solutions and taking on commitments for a more sustainable city. During the 2012 school year alone, the PA21E involved more than 100,000 students, 8,000 teachers, 1,500 workers in educational institutions and over 70,000 families (Franquesa, 2012, p. 68).

Since 1994, more than 2,000 European local authorities have signed the Aalborg Charter, which provides a framework for Local Agenda 21 processes and requires public awareness and engagement with citizens. More than 20,000 local authorities have participated in capacity-building events hosted by the East Asia office of ICLEI: Local Governments for Sustainability. United Cities and Local Governments (UCLG) represents a 100-year-old consortium of the major local and regional government associations from across the globe and recognizes that local authorities are at the forefront of addressing sustainable development agendas (UCLG, 2012, p. 6).

These few examples capture only a fraction of the results and efforts that have been underway at the local level for many years to demonstrate the value of educating and informing citizens about sustainable development. And yet, the engagement of local authorities in the work of the DESD was not adequately reported through the DESD M&E

instruments, with very little information provided in terms of the depth of approaches to ESD local policy and its outcomes and impacts.

Implications for future actions

At the end of the DESD, there is no doubt that ESD policy has been advanced globally, regionally, nationally and locally, although experiences vary widely, and there are still gaps in our knowledge of what is working with respect to the policy process, particularly at the local level.

Box 3.4.2.1: Suggested actions

➤ **Build understanding and capacities with local level educational policy-makers.** Those responsible for education in schools at the local level require support to understand where and how they can advance ESD in curricula, teaching and operations. This will be key to anchoring ESD in local contexts, through policies for whole-institution approaches, and can contribute significantly to local sustainable development.

➤ **Provide guidance to local authorities on how to include education, training and public awareness for sustainability in local policies**, to build staff capacity and engage citizens more comprehensively in sustainability action.

➤ **Strengthen research and assessment on local ESD policy approaches**. Additional research and assessment on how municipalities can engage directly with local schools might provide local authorities with additional leverage to meet their sustainability commitments. In particular, it would be valuable to explore how whole-school approaches and other local implementation practices are in fact leading to demonstrable improvements in the sustainability of their surrounding communities.

Where evidence of effective policy processes can be found is in how those policies have been implemented – and in the results with respect to changes in formal education, non-formal training and capacity-building and public awareness raising. The following section presents the achievements and lessons from 10 years of changing education practice in support of sustainable development.
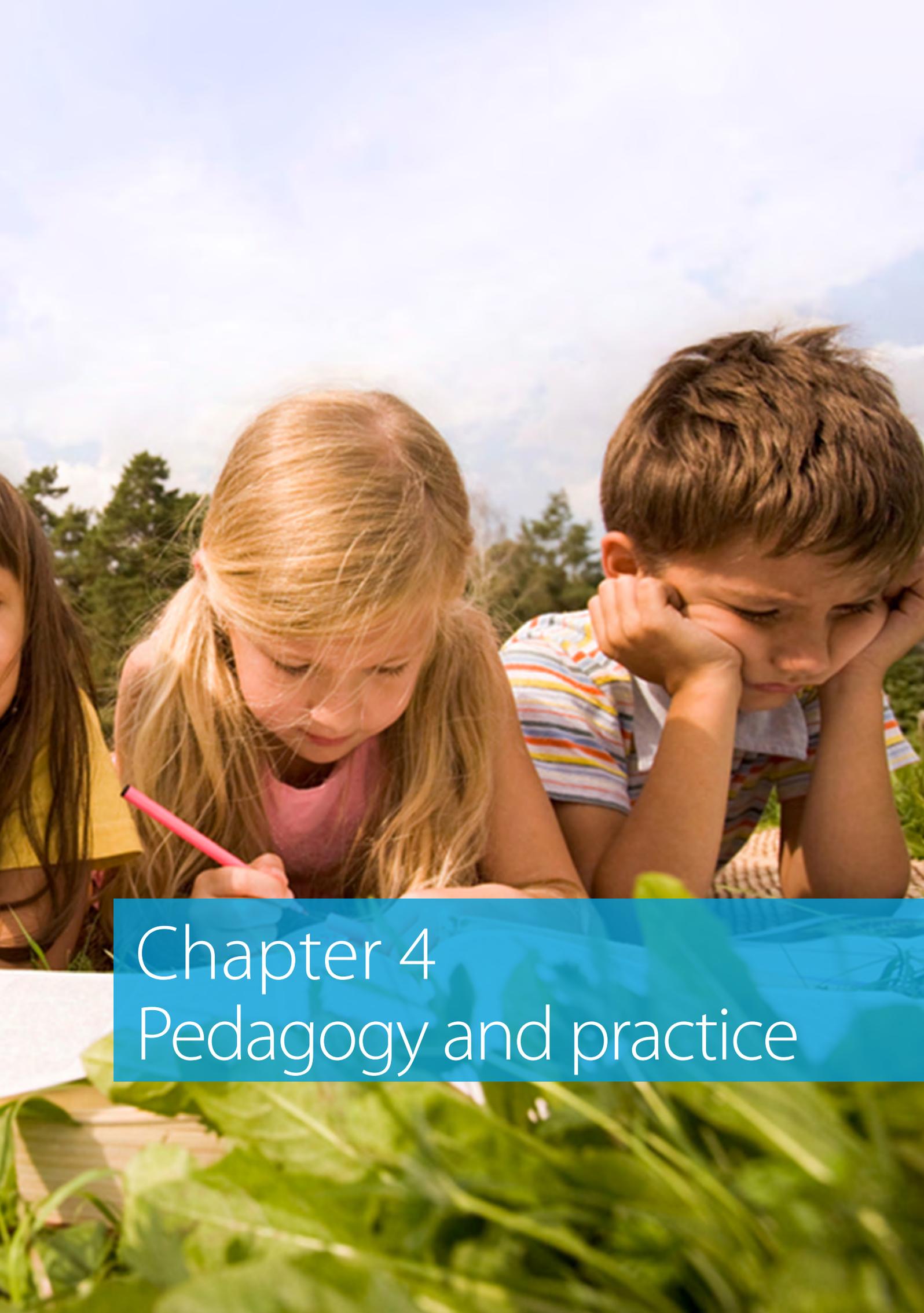
Chapter 4
Pedagogy and practice

Chapter 4: Pedagogy and practice

The strength of the DESD is that it clearly provided a mechanism for many reporting Member States to put in place the enabling conditions for stakeholders to advance their work. With the designation of focal points, national coordinating bodies, high-level interdepartmental committees, the approval of policy frameworks and the launching of strategies, governments have provided the encouragement, legitimacy and mandate to move forward.

Member States and stakeholders have reported not only on the establishment of ESD policies, as discussed in the previous chapter, but also on the reorientation of curricula in many areas and levels of education, the deployment of new approaches to learning, tens of thousands of consultations, capacity-building efforts, local-level projects and resource materials, and the establishment of hundreds of networks and partnerships, all of which have contributed to the implementation of ESD progress in all levels of education.

UNESCO's GME Questionnaire respondents were asked to rate, on a scale of 1 to 5 (with 5 being full implementation), whether ESD has been included in policy and practice in the various levels and areas of education (ECCE, primary and secondary, TVET, higher education, teacher education, non-formal education, training and capacity-building, and public awareness) and learning. The average among Members States for all the ratings in 2005 was 1.9, where ESD was not even an emergent interest. The average for 2014 is now 3.38, which demonstrates that the inclusion of ESD is in progress.

Table 4.1: Rating scale for UNESCO Questionnaire

1. ESD has not been included in policy and practice
2. ESD is an emerging interest
3. ESD is in progress in policy and practice
4. ESD is in significant progress
5. ESD has been completely integrated

Stakeholders share with Member States the impression that, compared to 2005, **ESD is now considered to be a solid work in progress**.

Member States further considered that the DESD was also helpful in stimulating changes in education that would contribute to an increase in understanding of specific sustainability challenges. Across a wide range of sustainability challenges listed in the GME Questionnaire, Member States identified Health, Water, Biodiversity, Climate Change and Energy as the top five issues being addressed through education, with other stakeholders adding sustainable production and consumption to that list. Indeed, all sustainability challenges listed in the UNESCO Questionnaire are being addressed in at least one or more areas of education by either Member States, other stakeholders, or, in most cases, by both. Bulgaria reports:

> ESD offers a variety of themes related to real life challenges and circumstances to be explored, so it serves as an overarching bridge between the different fields of study on [the] one hand, and on the other, brings them in a more tangible manner, to the reality, for which pupils and students are to be prepared at school to face, tackle and function, together, peacefully and in harmony with the surrounding environment.
>
> — (GME Q Bulgaria, MS)

Across all levels and types of education – formal, non-formal, informal – ESD is also helping to advance the change in teaching and learning processes, bringing in approaches that 'stimulate pupils to ask questions, analyze, think critically and make decisions', that are cooperative rather than competitive and that are more student-centred rather than teacher- or trainer-centred. ESD pedagogies are moving instruction from rote memorization to participatory learning (UNESCO, 2012b). ESD is also moving the learning experience beyond the classroom and into the community (Down, forthcoming; Jiménez and Martin, 2007).

In the early years of the DESD, ESD was understood as primarily content-based, emphasizing the reorientation of the curriculum and general knowledge about sustainable development. However, through the DESD, expert practitioners have advanced the understanding that ESD also requires new approaches to teaching and learning (UNESCO, 2012d).

During the DESD, an Expert Review of Processes and Learning revealed that certain key learning processes underpin ESD frameworks and practices. These include processes of collaboration and dialogue, processes that engage the 'whole-system', processes that innovate curriculum, as well as teaching and learning experiences and processes of active and participatory learning (UNESCO, 2011a).

Member States and other stakeholders agree that ESD reinforces the identified key learning processes. Respondents to UNESCO's Global Monitoring and Evaluation Questionnaire were asked to choose from a list of the types of learning favoured in the implementation of ESD in order to ascertain general trends in learning. According to the Questionnaire results for both Member States and other stakeholders, the top three types of learning, considered to be most conducive for ESD, are participatory and collaborative learning, critical thinking and problem-based learning.

Figure 4.1: Types of learning associated with ESD, as identified through the GME Q
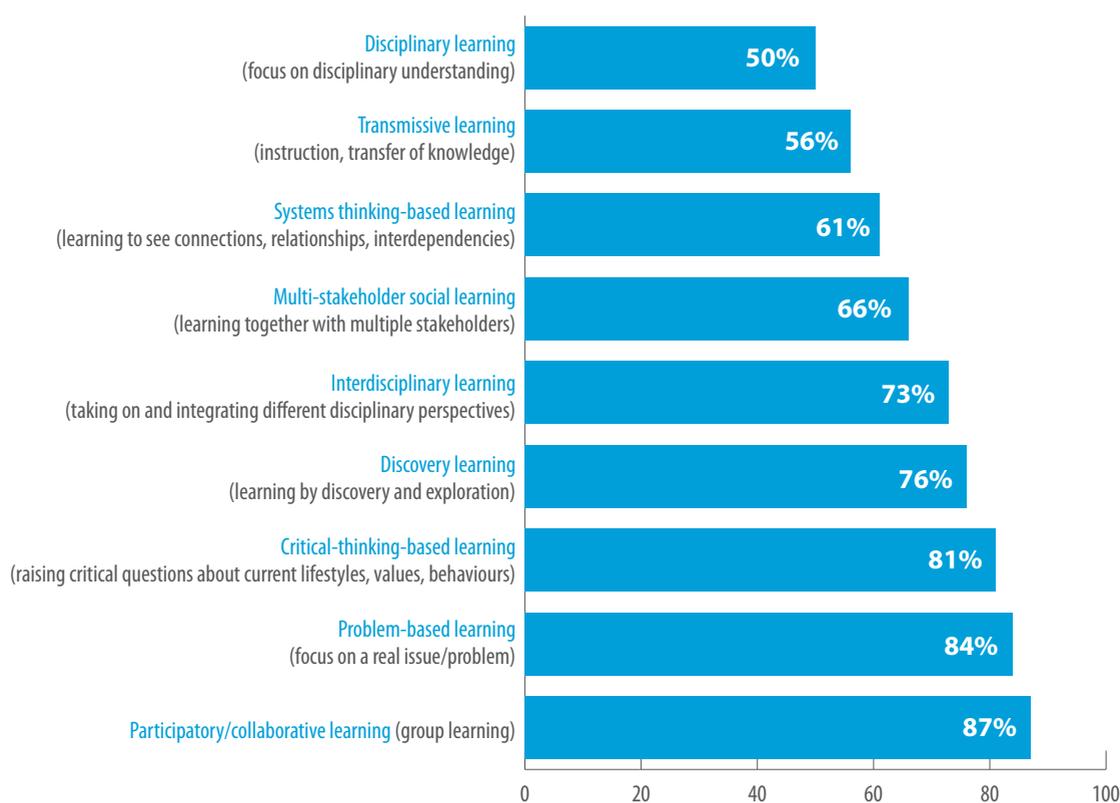
Source: UNESCO GME Questionnaire MS.

Critical thinking has moved up in importance since the 2012 DESD M&E report, where it was placed fourth (UNESCO, 2012a). The majority of Member States indicate that all of the types of learning listed in the Questionnaire are associated with ESD. The Republic of Korea's response to how ESD reinforces quality education identifies pedagogies associated with ESD as having contributed to 'strengthening students' capabilities for [a] future society' (GME Q Republic of Korea, MS).

> Since 2011, the ESD-oriented environment project [. . .] for adolescents [has] been held every year, in which hundreds of students participate. The learning outcomes increased students' competence to solve problems and to comprehend the complexities of real issues [. . .]. Students who took part in the projects tend to achieve good performances on entering universities. In these cases, the place of learning shifts to the out-of-school environment, creating partnerships between various entities and school education, which is also considered to be significant.
>
> — (GME Q Republic of Korea, MS)

Austria has indicated a broad link between quality objectives to be reached and pedagogic principles of ESD.

> The legal framework for quality management at schools does not include ESD, yet. However, there is a broad accordance between the quality objectives to be reached and the pedagogic principles of ESD. This is also reflected in basic documents for teaching, etc. The principles and criteria of ESD were applied within the great variety of programmes and awards which were carried out within the DESD. They will also be reflected in the future performance indicators for Austrian universities.
>
> — (GME Q, Austria, MS)

Sweden has pointed to ESD as encouraging learners at all levels to use systemic, critical and creative thinking and reflection in both local and global contexts (GME Q Sweden, MS). Responses from principals, teachers, students and external actors to a recent five-question survey about ESD in four Swedish secondary schools suggest that ESD, interdisciplinary projects, a variety of assessment methods and flexibility in ways of working have had a very positive impact on student achievement and do lead to a wide range of expertise (Lindqvist, 2014). A superintendent from a school division in Manitoba, Canada, also confirms that ESD has a positive impact: 'Based on observations and anecdotal data, we have seen an increase in student engagement. ESD initiatives have given many students a passion and purpose. Attendance has increased, and teachers report higher intellectual engagement in learning' (MacDiarmid, 2014). In fact, more than 181,000 primary and secondary students in the Canadian province of Manitoba are learning to live sustainably (GME Q, Canada, MS).

In summary, at the end of the DESD, **it is now possible to see changes in curricular contents that shape knowledge of sustainable development; changes in learning approaches that improve the attainment of knowledge and abilities for sustainability; and outcomes, with respect to student participation and engagement in learning, that are relevant for their future as global citizens**.

This overview of progress provides a picture of Member States beginning to reorient their education systems to address a wide range of sustainable development challenges, using more collaborative, critical inquiry and problem-solving approaches in the learning process. A review of progress and lessons learned from ECCE through to adulthood and the learning necessary to contribute to work and life with one's family and community at the end of the DESD in each stage of that continuum follows.

Early Childhood Care and Education

ESD starts with early childhood care and education

Highlights

Early childhood care and education (ECCE) contributions to ESD have increased, supported by national initiatives, networks of experts and research activities.

ECCE is the foundation for sustainable development and the beginning point for ESD.

Reorienting ECCE towards ESD must begin from birth, and not only through pre-primary school settings, but also in the home and wider community.

Play-based learning for sustainable development contributes to a child's acquisition of social understanding and nature awareness.

Challenges

ESD in ECCE remains fragmented within and among countries, with considerable variations in the availability, accessibility and quality of programmes.

ECCE educators / primary care-givers lack capacity to incorporate ESD into their teaching / care-giving activities.

ECCE: ESD Actions around the World

Why young children **?**

ESD is about securing the future, in recognizing that our youngest children have the greatest stake as citizens in that future.

Research from longitudinal studies and from neuroscience has shown that it is in the early years (birth to age 8) that children have the greatest capacity to learn and that many of our fundamental attitudes and values are first put into place at this time.

Children between the ages of 0–8 represent the highest percentage of affected populations in today's global emergencies (Plan, 2005; UNICEF, 2007, 2008).

Children born in 2013 will come of age in 2030, by which time the effects of climate change, in the form of an increase in droughts, floods and storms, are likely to be more in evidence (Harvey, 2013).

The Starting Young project
in Singapore

saw two pre-schools embark on a project to raise awareness of SD among children aged 2 to 6, based on the premise that 'children are capable, resourceful and competent individuals, who can be empowered to become active contributors and agents of change'. The project reached more than 300 children and their families, enhancing their appreciation of nature, raising awareness on SD and giving the children the means and the courage to speak out for the environment and in favour of sustainable practices (Hor, 2014).

The Matarajio project
in Kenya's Rift Valley

focused on the environmental legacy of Wangari Maathai, the world-renowned Kenyan environmental activist and Nobel Peace Prize Winner, presented as a strong role model to the children. The children were engaged in sharing and learning about environmental concerns and were involved in a number of practical activities concerning woodland appreciation, preservation and management. The project is being reproduced in many other pre-schools (Siraj-Blatchford, 2014).

The Leuchtpol project
in Germany

involved over 4,000 German kindergartens (10% of all facilities in Germany), using ESD as their educational guiding concept, and has reached over 33,000 children. The educators encouraged 3 to 6 year-old children to learn and engage with energy and environmental issues in a playful manner, for instance by discovering solar and wind power through play and hands-on activities. Six months after the training, 97% of educators participating were convinced that teaching energy conservation to young children is important (UNESCO. 2012c).

4.1. Early Childhood Care and Education

> ESD has inspired the government of Indonesia to prioritize Early Childhood Education as an investment of lifelong learning through character education.
>
> — (GME Q Indonesia, MS)

Early Childhood Care and Education (ECCE) refers to the education and care of children from birth to age 8. This is a diverse and complex field that includes children's prenatal care, their home, community and pre-school educational settings, the early years of schooling and related services. The role of families and communities in ECCE is paramount: parents are children's first educators and caregivers (UNESCO, 2013i) while local communities provide the context for living and learning.

The early years are the foundation not only of later success in learning, but for a child's capacity to participate effectively in a community, workplace and society (SDSN, 2014). It is in early childhood that the foundations of many of our fundamental attitudes and values are put into place, including attitudes and values towards learning. **Access to quality pre-primary programmes and services places children in a better position to reach their highest potential and participate in the achievement of a more sustainable world**. The report, *The Future of Our Children: Lifelong, Multi-Generational Learning for Sustainable Development*, synthesizes the current global research on the benefits of early childhood development programmes and policies, noting that:

> …the capacity of a nation to build sustainable systems and infrastructure, innovate and invest in technology, and grow while reducing impact on the earth's resources all depend on a workforce with the skills that are foundation to civic engagement, creativity and productivity. The period of early childhood is critical in this regard. There is a direct link between development potential in early childhood and a nation's potential for sustainable development.
>
> — Chavan et al. (2013)

Embedding ESD into ECCE requires change across several dimensions: curriculum and pedagogy (including 'integrated learning and teaching activities and projects where children are active learners responding to real and relevant environmental/sustainability issues of interest to them'); the surrounding physical and social environments that provide context and opportunity for learning; and close relationships with families and the community 'to ensure that learning and teaching for sustainability is an ongoing, two-way process' (Davis, 2010a, pp. 4-5).

ECCE has a clear role in preparing present and future citizens and in aiding societies to make the necessary transitions to sustainability. During the DESD, particular attention was paid to the contribution that ESD in ECCE can make to preparing children for the challenges and opportunities that lie ahead, supported by a growth of ECCE contributions to ESD around the world, including an increase in early childhood ESD research. However, although clear progress has been made, much work remains to be done.

Overview of progress

One of the more significant outcomes at the end of the DESD is increased recognition that ECCE has a key role to play in establishing the foundations for sustainable development. Two events catalyzed by UNESCO – and held during the DESD – provided guidance to countries on the importance of addressing sustainable development in ECCE. In 2007, The Role of Early Childhood Education for a Sustainable Society workshop, jointly organized by Gothenburg and Chalmers Universities, Sweden and the City of Gothenburg, brought together ECCE experts from 16 countries, leading to the first-ever ESD international report focused specifically on ECCE, *The Contribution of Early Childhood Education to a Sustainable Society*. A second workshop in 2008 led to *The Gothenburg Recommendations on Education for Sustainable Development*. The Gothenburg Recommendations state clearly that 'early childhood is a natural starting point for ESD' (p. 7). Together, these documents have provided impetus for ESD initiatives in ECCE in many countries across the globe.

Reinforcing this international commitment, the 2010 UNESCO-Russian Federation World Conference on Early Childhood Care and Education recommended that 'education for sustainable development [should be included] as a central part of quality ECCE' (UNESCO, 2010b). The United Nations Economic Commission for Europe (UNECE), in its own regional ESD strategy, has also recognized that ESD is a lifelong process that begins in early childhood (UNECE, 2005), and is tracking implementation on ESD in ECCE within its Member States.

Figure 4.1.1.1: Average rating of ECCE in 2005 and 2013 for Member States
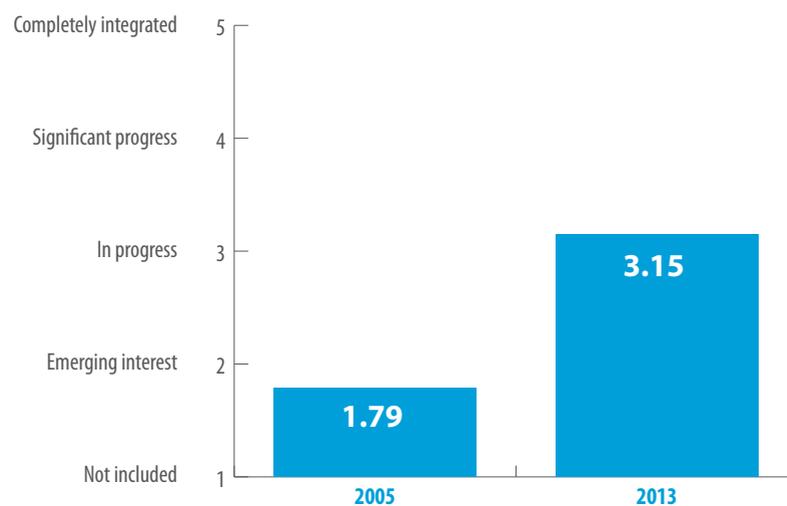
Source: UNESCO GME Questionnaire MS.

Reports from UNESCO Member States and other stakeholders suggest that most regions are making some progress towards the inclusion of ESD in ECCE (from 1.79 in 2005 to 3.15 in 2013), but progress is not as advanced as in other areas of education. Just over a quarter (28%) of Member State respondents considered ESD in pre-primary education as making 'significant progress' or 'completely integrated', but this must be compared with primary and secondary education, where at least half of the reporting countries are making significant progress towards, and in many more cases achieving, full integration. As the Republic of Korea observes, 'in early childhood education, ESD is newly emerging but has been long delayed and is yet to be widely applied, compared with the situation in primary and secondary education' (GME Q Republic of Korea, MS). On average across the 70 reporting countries, ESD in ECCE was not included in education planning in 2005; by the end of the DESD, it is still barely in progress with one of the lowest score increases across all levels and areas of education. Other stakeholders suggest that ESD in ECCE remains only an 'emerging interest' (2.89 averaged rating) at the end of the DESD.

Figure 4.1.1.2: Status of ESD in ECCE in 2005 and 2013 for Member States
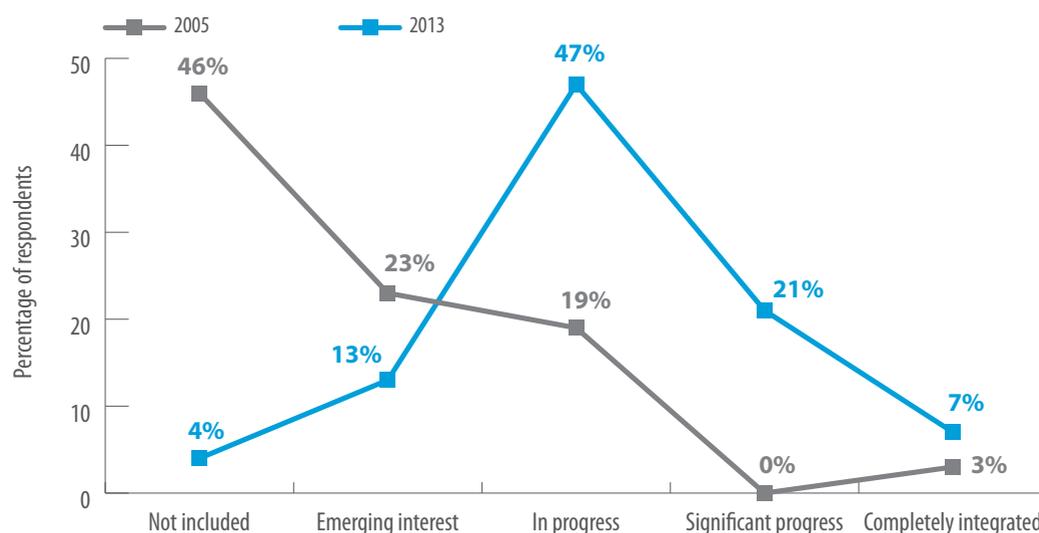
Source: UNESCO GME Questionnaire MS.

Data regarding ESD in ECCE is not systematically collected in many countries, in part because the field is generally more diffuse and less formalized than primary or secondary education in most countries. As one stakeholder respondent suggests, additional data to support a more detailed analysis of progress is very limited, partly because ECCE is 'less structured and reachable than primary and secondary education' (GME Q Federal Office of Public Health, Switzerland, KS). Furthermore, responsibilities often lie with ministries other than education, or with agencies outside of government. In Georgia, for example, responsibility for ECCE institutions rests primarily with local municipalities (GME Q Georgia, MS).

Based on the data available from experts and the literature, there are, however, notable advances to highlight in some countries, primarily in the area of curriculum reform or enhancement. While these do not yet suggest system-wide reorientation to sustainable development, they provide encouraging examples of progress. The Arab States, Oman and Kuwait confirm that ESD is now integrated into ECCE. Chile and Peru highlight successful efforts to include environmental awareness (Chile) and environmental and global citizenship (Peru) in ECCE curriculum and planning. A 2012 UNESCO report on ESD in the Caribbean identifies two countries, Jamaica and Guyana, as also having made ESD progress in ECCE. In Guyana, components of ESD are infused in the Early Childhood Education Curriculum with aspects of ESD addressed in health and environmental sustainability programmes in schools. In Jamaica, elements of ESD have been included in a new curriculum developed for children from birth to five years, while the college curriculum for early childhood educators in Jamaica has also been revised to focus more on environmental education and ESD issues (UNESCO, 2012c).

European and North American Member State responses provide additional examples of ESD in progress: the integration of SD in ECCE standards and curriculum in Latvia; the inclusion of principles of ecological awareness and citizenship in Montenegro's 2010–2015 Strategy of Early and Pre-school Education; the integration of ESD into the Early Learning and Child Care Curriculum of the province of New Brunswick, Canada. In Finland, the place of ESD is recognized in a full continuum of education from the earliest years to adulthood.

In the Asia and the Pacific region, Iran points to high-level, interdepartmental agreements to 'integrate environmental concepts in kindergarten and pre-school' (GME Q Islamic Republic of Iran, MS). In Australia, the Early Years Learning Framework includes principles of ESD (DEEWA, 2009), reinforced by the Australian Children's Education and Care Quality Authority's National Quality Framework (2012) and National Quality Standard, which asks that children learn to take an active role in caring for the environment and contributing to a sustainable future.

African Member States, in general, report that ESD in ECCE is still only an emerging interest. Nevertheless, Namibia and Uganda suggest there is some progress, with increased support for ESD in ECCE in Namibia (GME Q Namibia, MS) and the incorporation of ESD in Uganda's ECCE framework (GME Q Uganda, MS). Cabo Verde supports the training of professionals on topics related to childhood and education and environmental awareness and the preparation of teaching materials and practical activities on topics such as biodiversity protection, saving water and energy (GME Q Cabo Verde, MS).

While progress on reorienting ECCE towards sustainable development may vary widely from country to country and region to region, there are important achievements to celebrate at the end of the DESD, with lessons that will be useful to ECCE policy-makers and practitioners in the years to come.

Research providing evidence of the importance of ECCE for sustainable development

Looking across all regions, one achievement in particular is worth singling out: the results of research that affirm the importance of ECCE for sustainable development. The World Organization for Early Childhood Education (OMEP) has been a leader in ECCE-ESD research. Among other activities during the DESD, OMEP interviewed 9,142 children between the ages of two and eight in 28 countries as part of its Children's Voices about the State of the Earth and Sustainable Development project. OMEP found that young children are capable of contributing to positive discussions on environmental/sustainability issues (Engdahl and Rabušicová, 2010). The Ewha Institute of Childhood Education and Care in the Republic of Korea has similarly demonstrated how children at the age of five can gain awareness of sustainable development and propose ideas and actions (GME Q Republic of Korea, MS). Davis (2010b) emphasizes that young children can be action-takers for the environment and sustainability, citing several studies that illustrate how children have taken action to change their local environment or communities.

This evidence effectively answers concerns that children in this age group are not yet ready to learn about sustainable development and has opened the door to ESD policy development and programming in ECCE. OMEP's commitment to ESD, together with its independent research and projects, has added important weight and influence on why and how countries might begin to reorient ECCE towards sustainable development. OMEP has advanced its research agenda towards the development of the OMEP Environmental Rating Scale for Sustainable Development in Early Childhood (ERS-SDEC), an important tool to help guide both policy-makers and ECCE practitioners in curriculum and pedagogy.[1]

There is now a growing movement of researchers around the globe who are working to improve the knowledge base for ESD in ECCE. The establishment of a research agenda to inform early childhood ESD practice has been a priority of the Transnational Dialogues in Research in Early Childhood Education for Sustainability, an international early childhood ESD research group from across the Asia and the Pacific, Europe and North America regions.[2] The 2012 launch by the North American Association for Environmental Education of its peer-reviewed International Early Childhood Environmental Education Journal provides an important communications channel for such efforts. UNESCO itself has added to the knowledge base with case studies in 12 countries in the report, *Education for Sustainable Development Good Practices in Early Childhood* (UNESCO, 2012c). These efforts have been supported by the establishment, early in the DESD, of UNESCO's Chair in Early Childhood Education and Sustainable Development at Gothenburg University. The importance of these research efforts cannot be underestimated as they contribute to a deeper understanding of ECCE for SD.

Holistic, community-based approaches: A promising start

Reorienting ECCE towards sustainable development must begin from birth, not only through pre-primary and school settings, but also in the home and wider community. Holistic, community-based approaches to ECCE, in which solutions to local problems are explored collaboratively by children, parents and community members, have begun to gain profile during the DESD, although considerable work is required to expand the evidence base and derive guidance on how to introduce, support and evaluate these approaches.

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1   See http://www.worldomep.org/en/esd-scale-for-teachers/
2   See http://sustainableschoolsproject.org/news/early-childhood-education-sustainability-reflections-downunder

UNESCO's 2012 report, *Education for Sustainable Development Good Practices in Early Childhood* provides details of several large-scale national or regional initiatives that addressed not only children's pre-school participation, but also community participation.

Box 4.1.1.1: Uruguay – Siembras project

The Uruguay *Siembras* project stands out in terms of its reach and impacts. The communitarian programme for health, coexistence and development promotion sought to strengthen local community sustainability and promote better ways of living together. Involving children aged 3-12 years old, *Siembras* reaches more than 23,000 children from participant towns, including 700 educators from the education centres attended by the children, and around 6,000 families. Education provisions are made to support community understanding of health, local organic food production, citizenship and sustainable development.

Source: UNESCO (2012c).

Box 4.1.1.2: Republic of Korea – Musim Stream project

The Korean Musim Stream project exemplifies a holistic, community learning approach to ESD in ECCE that focuses not only on children's learning but on their role in influencing awareness and attitudes within their community. The target group of 5-year olds engaged in a wide range of activities including learning about the stream's ecosystem and food chains. They then became active participants in the local political life when they sent a letter to City Hall asking that a special map be made of the stream that explained key features and habitats for the city's younger inhabitants to complement the existing map for adults. The children also campaigned publicly for the protection of the stream, bringing citizens' attention to the plight of local endangered wildlife.

Source: Ji and Stuhmcke (2014).

Experts informing the DESD review also point to experiences in the Russian Federation, where the initiative for ESD comes from teachers and others who work directly with children. ESD projects in kindergarten involve not only children and teachers, but also parents and grandparents. Children present the results of their projects in schools, turn to local administrations and enterprises, create and display posters at bus stops, in public transportation, close to shops, and so on. Many adults hear about sustainable development for the first time from children (Siraj-Blatchford and Pramling Samuellson, 2013).

Another type of programme supporting a holistic approach is child-centred disaster risk reduction education (DRR) being introduced in early childhood programmes in countries such as Australia, Japan, Turkey, Philippines and Indonesia. Children between the ages of 0-8 represent the highest percentage of affected populations in global emergencies (Plan, 2005; UNICEF, 2010). DRR education programmes have therefore been developed around the world to support young children in developing resilience, both the capacity to adapt and to thrive under stress. These programmes help to strengthen children's skills so that they understand the risk of disasters in their communities and are able to play a role in reducing the risks and impacts of potential disasters.

These project examples reflect an emphasis on transformative approaches (Stuhmcke, 2012) that address locally-determined sustainability challenges. Such projects enable in-depth coherent learning over time, reinforcing key themes related to ESD, as opposed to piecemeal 'activities'. In keeping with the trend towards holistic, community-based approaches in ECCE, the projects have the added dimension of supporting children's action-taking to complement problem identification and problem solving.

Many of the most impressive ECCE for sustainable development practices occur when children and their parents and communities are encouraged to reflect and take action upon the world in order to transform it (Freire, 1974). **The role of the educator, as a facilitator and co-learner with children who guides rather than instructs, lies at the heart of holistic approaches to ESD**. However, this will require greater attention to the preparation of early childhood educators to fulfil this role.

Whole-school approaches reinforce holistic, multidimensional ESD

A whole-school approach encompasses the holistic development of learners to understand all dimensions of sustainability, the use of the setting as a laboratory and demonstration of sustainability in practice, and the engagement of the broader community in the learning process. There is evidence that some 'whole-school' and certification programmes designed for primary and secondary level institutions are beginning to include ECCE services. In Sweden, for example, the Green Flag certification programme, an award credited for environmental education by the Keep Sweden Tidy Foundation, has been expanded to include pre-schools. In 2013, 175 pre-schools – 18% of all Swedish pre-schools – had a Diploma of Excellence in Sustainable Development, credited by the National Agency for Education. New Zealand has had healthy ECCE uptake in its 'Enviro schools' movement. The Australian Sustainable Schools Initiative has not overtly been targeted towards the pre-school level. Nevertheless, several pre-schools have adopted its general principles and successfully introduced changes to environmental management practices as well as sustainability teaching and learning (Young and Cutter-Mackenzie, 2014). In some countries, there has been inclusion of day care centres in primary and secondary schools, which may help advance the inclusion of whole-school approaches in ECCE. However, it is important to reach the ECCE in non-formal and informal systems, too. **Taking a 'whole-school approach' can reinforce good practice and serve as inspiration and guidance for other ECCE services, potentially contributing to advancing ECCE for SD**.

ESD is helping to reshape curriculum and pedagogical practices

Some countries, such as Japan and Sweden, have had formal curriculum frameworks that support nature/environmental learning for children since well before the DESD. There is growing evidence that some of these earlier frameworks have expanded to reference sustainable development and identify principles of ESD. While such advances are taking place primarily within formal systems (such as pre-school and kindergarten), there is less evidence of similar attention to curriculum and learning approaches that support parents, communities and services in their roles in non-formal/informal ECCE.

Recent literature on ECCE practices emphasizes several points relevant to ESD: young children are increasingly understood as competent human beings now, rather than 'developing'; there is a strong tradition of seeing nature as both a site and a resource for play and learning; and early childhood educators are using multidisciplinary/integrated modes of learning and teaching, such as play and projects. There is also a keen focus on democratic, participatory learning approaches; involving children in creative problem-solving, and families and communities in decision-making about what is learned is becoming more common.

ESD pedagogies in ECCE are seen as helping to further promote participation, values, democratic decision-making skills and collaborative action-oriented learning. They help to:

- build upon the everyday experience of children;
- provide curriculum integration and creativity;
- support intergenerational problem-solving and solution-seeking;
- promote intercultural understanding and recognition of interdependency;
- involve the wider community;
- support active citizenship in the early years; and
- aid in the creation of lifelong cultures of sustainability.

> ESD in ECCE reinforces integration in the contents of education; helps to establish links between kindergartens, families and society as a whole; advances project activities in kindergartens; and gives more support for children's initiative and independent activity. Thanks to ESD, not only children, but also their parents and educators, start to see and understand connections between ecological, social and economic problems.
>
> — (GME Q Moscow City Pedagogical University, KS)

Play, including play in the outdoors, has an essential place in ECCE for SD

One of the prominent themes in the literature on ECCE is the value of play-based pedagogy, including cooperative play that is supported through progressively more challenging scaffolding props, interactions and playful environments. Nevertheless, Edwards and Cutter-Mackenzie (2011), in examining play-based learning and the way different types of play can be used as a pedagogical basis for supporting children's learning in early childhood environmental education, concluded that both play-based *and* intentional teaching events can support acquisition of content knowledge associated with sustainability.

Outdoor nature play is seen as an important component for ESD in ECCE. Recent research initiatives suggest that one of the most important influences in promoting environmental awareness and concern is childhood experience 'outdoors', with early years practitioners long recognizing the learning potential of the outdoor learning environment (Chawla, 2006). A survey by Metz and Weigel (2013) found that the majority of parents in four countries (Brazil, US, China and France) say it is 'very important' for children to spend time in nature. Parents in Brazil, in particular, view building children's belief in conserving nature as the number one benefit of getting children outside. Ngahere, an 18-month action research project based in New Zealand, explored what nature-based learning looks like and found that: i) supportive teaching strategies include observation, silence and adults being a play partner; and ii) that very young children are agents of their own learning and this agency is magnified in the outdoors (Kelly and White, 2013).

Outdoor education in Scandinavia has particularly high status aimed at improving physical development and children's connections with nature, with many Scandinavian pre-schools built and run in secluded woodland. 'Forest Schools' activities have become popular in other European, North and South American, and some Asia and the Pacific contexts (Davis, 2009; Bruce, 2012). International movements such as the Children in Nature Network also promote the critical importance of moving children outside to experience nature both for immediate health and well-being, and for learning to understand and take care of natural environments as a precursor to learning about sustainable living. Across the globe, as children increasingly live in urbanised environments, combined with expanding access to technologies, major challenges to children's ongoing engagement with natural environments are becoming evident.

ECCE for sustainable development encompasses all the dimensions of sustainability

Elliott and Davis (2009) suggest that there is consistently a stronger focus on the environmental dimensions of sustainability in ECCE, and that an orientation towards outdoor nature play may be interpreted by many early childhood educators as a sufficient contribution to ESD. These authors argue, however, that such a view is not expansive enough to embrace the broad range of contemporary environmental, economic and social concerns that should be addressed from the earliest days of a child's learning. On the environmental side, evidence can be found in Cook Islands, for example, where the Edible Gardens programme is run within Early Childhood Centres. These centres have a 'learning through play' philosophy, where the programme involves children learning about and growing their own vegetables and fruit for lunch and also taking it home to their families. As a result, some families have since started their own gardens at home. **Issues associated with biodiversity are being addressed when children are encouraged to care and protect the living environment around them,** and the extension of these activities into the children's homes helps to make the learning experience a social one, not limited to learning about the environment.

On the social dimension, evidence can be found of approaches to help children develop positive perceptions of themselves and of others: in the UK, for example, the 'Early Years Foundation Stage Guidance for England' suggests that pre-primary teachers 'work with staff, parents and children to promote an anti-discriminatory and anti-bias approach to care and education' (UK the Department for Children, Schools and Families, 2008). One of the most important educational transformations required to achieve ECCE for ESD is to integrate care and education with health and well-being provisions from birth onwards – in the home, the wider community, and in and through pre-primary and school settings. Multi-dimensional programmes such as UNICEFs' Water Sanitation and Health (WASH), Child-Friendly Cities, and WHO's Health Promoting Schools, offer scope and strategies for fostering and scaling up socio-cultural aspects of ESD in early childhood education.

Learning that supports children's emerging awareness and understanding of economic sustainability is perhaps the least developed, or least recognized, in ECCE. Yet, for most early childhood educators, parents and children, the day-to-day activities most significantly influencing sustainable development are at the level of consumption. In the World Watch Institute Europe Report, *From Consumer Kids to Sustainable Childhood* (2012)**,** the parents interviewed stressed the challenging, but important, role of education for sustainable development for children 'to develop the skills and insights that enable them to challenge the current way society is organized and seek to live within the resources of one planet'. Fundamental human values become essential for this. Sustainable consumption is therefore a particularly important area upon which ECCE practitioners might focus on in the future.

Efforts to strengthen ECCE capacity are beginning to include attention to ESD

One significant challenge has been the availability, accessibility and quality of ECCE that varies significantly across the globe. ECCE standards are often low in middle- and low-income countries and the combination of ECCE practitioners 'employed on a contract basis, receiving a low salary and with limited or no professional training' has been cited as a major impediment to ECCE (UNESCO, 2010c, pp. 44–45). Many early childhood practitioners do not hold university qualifications; they may be trained in technical colleges or not trained at all. The challenge of attaining higher standards in early childhood educator preparation adds to the complexity of reorienting ECCE towards sustainable development.

Over the DESD, some work has been undertaken in preparing early childhood educators to scale up ESD in ECCE, particularly through the International Network on Teacher Education Institutions associated with the UNESCO Chair on Reorienting Teacher Education to Address Sustainability. An offshoot of this international network in New Zealand is exploring ESD in ECCE, involving universities and colleges that provide pre-service teacher education as well as some kindergarten service providers (Ritchie, 2012). In Australia, a new national training package for early childhood has units of competency for sustainability within both certificate and diploma level courses. All early childhood education courses at Technical and Further Education Colleges (TAFE) across the country must deliver this package. Some university programmes in Australia are beginning to consider ESD in ECCE: James Cook University offers a course, Foundations of Sustainability in Education, with systemic and critical thinking, problem-solving, active citizenship and community partnerships as a basis of its curriculum. Monash University's education for environment and sustainability courses emphasize the integrative nature of sustainability (cultural, social, environmental and economic) that influences attitudes and actions towards sustainability, with pedagogies and practices that develop whole-institution approaches at different levels of early childhood addressed.

The above examples illustrate that, while there has been some progress in the inclusion of ESD in pre-service and in-service early childhood education, significantly greater attention is necessary. Pakistan suggests that 'There is a dire need and incessant demand to concentrate on [ESD in ECCE]; especially, focus needs to be on development of curriculum and text books for ECCE' (GME Q Pakistan, MS). However, development of curriculum guidance and materials alone will be insufficient to catalyse systemic change in ECCE. In Kenya, for example, the national curriculum guidance includes activities related to water, health, hygiene and the environment, and these are applied in most schools where there are trained teachers. However, the majority of the current pre-primary teaching workforce have not been trained and remain largely unaware of this (Siraj-Blatchford and Pramling Samuellson, 2013).

China has observed first-hand how training can advance ESD outcomes in the classroom. In 2005, few kindergartens organized EE activities, but today many have begun to develop their own courses: 'It's because CNWCESD [the China

National Working Group for ESD] organized a series of ESD trainings for early childhood education teachers, and exhibited lots of successful cases' (GME Q China, MS).

It would appear that no systematic review has been conducted to evaluate the provision of ESD in teacher education for ECCE around the world, although anecdotal evidence suggests that overall provision and quality is patchy. Recent research (Steele, 2010) suggests that pre-service teacher education institutions and related early childhood programmes need to do much more to prepare early childhood practitioners for implementing ESD or for working in educational settings that seek to promote sustainability. There continues to be insufficient understanding among early childhood educators of how to incorporate ESD into teaching and learning (Crawford, 2011, cited in Rusminah, 2012). ESD in pre-service and in-service teacher education will be discussed further in the primary and secondary education section.

Implications for future actions

There is growing evidence of a shift towards ECCE for sustainable development across the globe, evidenced by the achievements and initiatives by ECCE stakeholders towards embedding ESD, as outlined here. However, progress in this area has been relatively limited and significant challenges remain. While linkages between sustainable development and ECCE are becoming better recognized and understood, ESD in ECCE remains fragmented within and between countries around the world.

Box 4.1.2.1: Suggested actions

➤ **Efforts to deepen the research base should be considered, to provide further evidence of the effectiveness of building awareness and capacity from the earliest years onwards.** ECCE for sustainable development continues to be under-researched and under-evaluated. This must be remedied to build the field on an evidence base of critique, reflection and innovation.

➤ **Guidance will be needed on successful and promising learning approaches in ECCE for ESD, with particular attention to holistic, community-based approaches** that embrace the multiple dimensions of sustainable development, as well as systemic pedagogies and approaches involving play and participation in community problem-solving.

➤ **As ECCE for sustainable development is not just about the children**, particular attention will be necessary for the education of parents and care-givers.

➤ **Early childhood educator preparation and training, aligned with the values and skills of learning for sustainable development**, should be strengthened in the Global Action Programme, which provides follow-up to the DESD.

Young children are both current and future citizens with already existing capabilities to shape sustainable societies. Investments that build their awareness, values, knowledge and capacity for sustainable development will serve to set the world on more sustainable pathways now and into the future.

Primary and Secondary Education

Preparing young people for the future

Highlights

ESD-related topics, initiatives, programmes and projects are increasingly being included in primary and secondary education curricula.

ESD pedagogies encourage teachers to shift away from traditional pedagogical approaches to learner-centered approaches.

ESD in schools contributes to intergenerational learning and sustainable development at the local level.

The whole-school approach represents a higher level of ESD integration.

Certification of teachers and accreditation of teacher education programmes can be important levers for change.

Challenges

Obstacles to progress in ESD implementation in schools include the absence of clearly articulated ESD strategies and policies and the lack of ESD educator competencies.

ESD implementation requires enhanced capacities among policy-makers, curriculum developers, school leaders, assessment experts and, most importantly, teachers.

Primary and Secondary Education: ESD Actions around the World

2,500 primary school **teachers** and **1,000** primary school **principals** have been trained in environmental education in **Albania**.
(GME Q, Albania, MS).

9,700 ESD projects took place in schools in **Greece** with **19,000** teachers and **235,000** students involved.
(GME Q, Greece, MS)

250,000 Mauritius students are learning about climate change and the environment in their school lessons.
(Ackbarally, 2013)

7,000 teachers took part in ESD teacher training in the **Republic of Korea**.
(GME Q, Republic of Korea, MS)

ESD e-learning teacher materials have been made available to **244,000 teachers** (in-service) and **430,000 teachers** (pre-service training) in **Viet Nam**.
(UNESCO. 2014d.)

1,000 schools in 14 provinces in **China** have adopted ESD and became ESD schools.
(GME Q, China, MS)

More than **181,000 primary and secondary students** in the Canadian province of **Manitoba** are learning to live sustainably.
(GME Q, Canada, MS)

1,860 schools in **Costa Rica** undertook environmental protection actions, up from 225 in 2004.
(GME Q, Costa Rica, MS)

14 million students and **1.2 million teachers** in 58 countries are currently involved in the **Eco-Schools** programme.
(GME Q, Eco-Schools, KS)

30,000 students and **3,000 teachers** from 116 countries participated in the **on-line Young Masters' Programme on Sustainable Development**, managed by Lund University in Sweden.
(GME Q, YMP, KS)

40,000 teachers have been trained to use the **Green Pack** environmental and sustainable development educational materials produced by the **Regional Environmental Center for Central and Eastern Europe** with a reach of over 4 million students in 18 countries.
(GME Q, REC, KS)

9,900 educational institutions from 181 member countries are **UNESCO ASPnet schools** dedicated to the promotion of global citizenship, peace and sustainable development.

4.2. Primary and secondary education

> Education reduces poverty, boosts job opportunities and fosters economic prosperity. It also increases people's chances of leading a healthy life, deepens the foundations of democracy, and changes attitudes to protect the environment and empower women.
>
> — UNESCO (2014a, p. 13)

Nearly one-fifth of the world's population – 1.24 billion students – is enrolled in primary and secondary education (UNESCO, 2014a). Mobilizing education to transform the lives of these children and youth through access and retention in quality education lies at the heart of ESD (UNESCO, 2012b).

The entry points to reorienting primary and secondary education towards sustainable development are multiple and complex, and extend beyond government policy (as discussed in chapter 3 on national policy). ESD in primary and secondary education addresses curricula content and learning outcomes across grade levels and school subjects, including not only knowledge acquisition but also the development of capabilities, attitudes, values and choices. ESD also encompasses changes in pedagogy and the preparation of teachers, school operations and community needs.

Overview of progress

At the end of the DESD, of all the types and areas of formal education, ESD is most advanced in primary and secondary education. Close to 40% of Member States indicate that their greatest achievement over the DESD has been the integration of ESD into formal curricula, with another fifth describing specific school projects as being their most important contributions to ESD. Of the more than 22,000 consultations, workshops, training and capacity-building efforts and over 18,000 curriculum support materials and publications referenced by Member States and other stakeholders, the majority have been in support of primary and secondary education.

Figure 4.2.1.1: Average rating of primary and secondary education in 2005 and 2013 for Member States
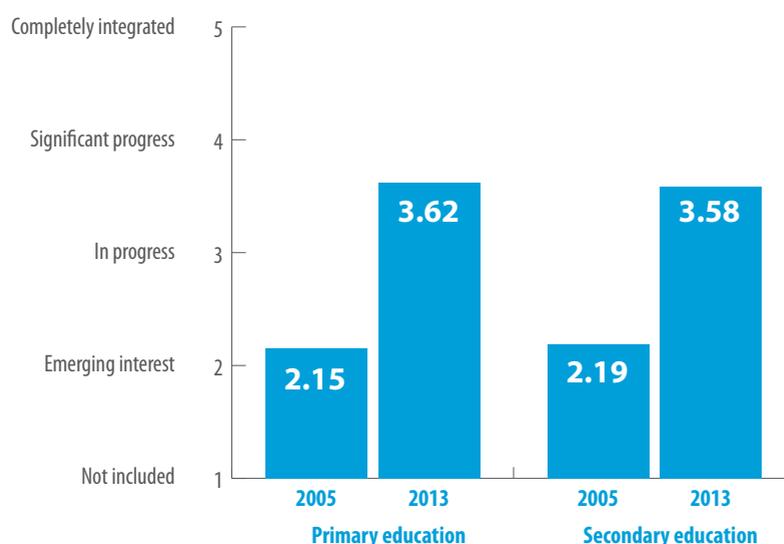
Source: UNESCO GME Questionnaire MS.

In the area of primary and secondary education, indications of increasing attention to, and visibility of, ESD is apparent. For example, almost half of all responding Member States reported that there has been 'significant progress' in ESD or that 'ESD has been completely integrated' in primary education (49%) and in secondary education (50%). In addition, on a five-point scale, Member States indicated that the state of ESD had improved by an average of 1.47 points in primary education (from 2.15 in 2005 to 3.62 in 2013) and 1.39 points in secondary education (from 2.19 in 2005 to 3.58 in 2013). These figures suggest that significant progress has occurred, certainly among the countries responding to the UNESCO Questionnaire.

Figure 4.2.1.2: Status of ESD in primary education in 2005 and 2013 for Member States
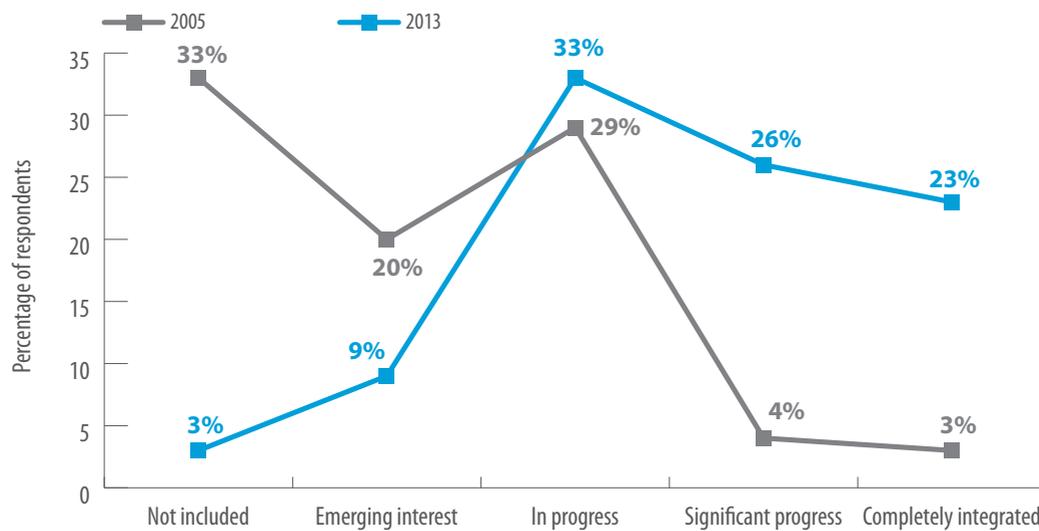
Source: UNESCO GME Questionnaire MS.

Figure 4.2.1.3: Status of ESD in secondary education in 2005 and 2013 for Member States
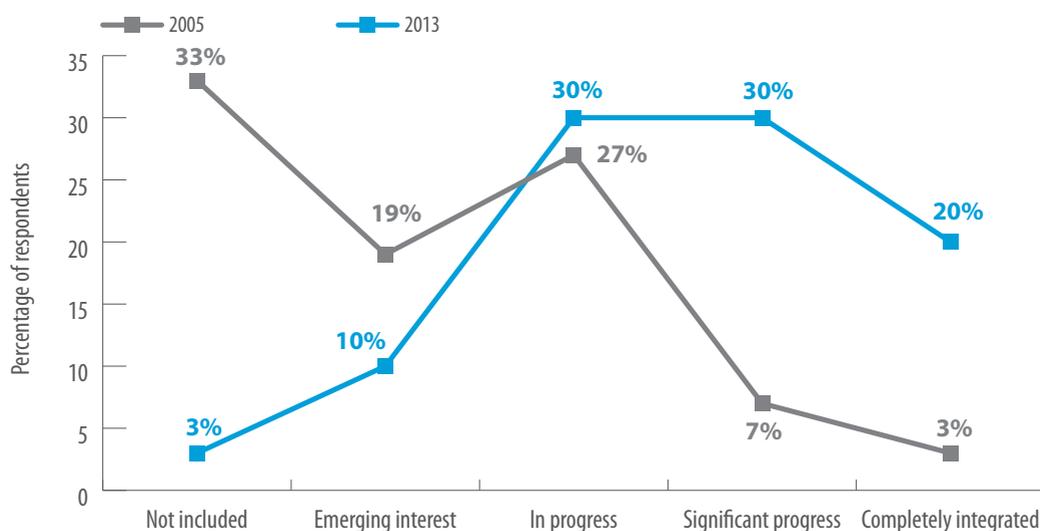
Source: UNESCO GME Questionnaire MS.

In 2012, the DESD M&E report suggested that the discourse surrounding ESD is now fairly well established in primary and secondary education in all regions of the world (UNESCO, 2012a). At the end of the DESD, many countries are clearly moving from discourse to implementation, although the level, scope and quality of specific ESD initiatives and programmes vary considerably within and across countries. The impact of the DESD on primary and secondary education, as in other areas and levels of education, is challenging to assess, given that many initiatives are experimental and either still in progress or fairly recently implemented. Pathways to implementation have included changes to curriculum, advances in pedagogies, the adoption of whole-school approaches, the use of recognition and certification schemes, strengthening school-community interactions, and teacher preparation. While the outcomes are promising, more time will be needed to see whether these lead to full-scale reorientation of primary and secondary education towards sustainable development.

ESD is increasingly being incorporated into formal curricula

UNESCO's International Bureau of Education (IBE) recently conducted an analysis of official curriculum documents, mostly published after 2004, and reported that: a) many countries include sustainability and/or environmental themes as one of the general goals of education; and b) such themes have become a very common transversal theme in general education curricula (Amadio, 2013).[3] This data reinforces Member States reporting on these advances. The IBE study also noted that:

> [...] environmental and sustainability issues are typically expected to be integrated into the learning process using an interdisciplinary approach and, in addition to theoretical aspects, there is an emphasis on activities constructed for real life situations, out-of-school work, implementation of sustainable development projects engaging the community, case studies and surveys..., group and collaborative work, and actual adoption of sustainable lifestyles (pp. 5-6).

In recent years, IBE has collaborated with the UNESCO Office in Bangkok and other UNESCO entities to produce thematic training modules on ESD issues including climate change, natural disaster reduction, gender sensitization, and guidelines for incorporating ESD into the curriculum.

These cross-national studies highlight the extent to which, and some of the ways in which, ESD themes are increasingly embedded in the overarching goals and official curricula of a significant number of the world's national education systems. The elaboration of cross-cutting ESD themes and interdisciplinary approaches to sustainability is especially apparent during the basic education cycle.

A recent study of seven Asia and Pacific countries (Cambodia, China, Japan, Malaysia, Philippines, Republic of Korea and Thailand) found that, in six of the seven cases, the core approach to ESD inclusion in the national curriculum is by integrating sustainable development topics in the teaching of traditional subjects and, in some cases, having curriculum mandates for aspects such as integrated learning hours (in Japan) or creative experiential learning activities (in Republic of Korea) where ESD is often selected as a topic of instruction (Didham and Ofei-Manu, 2012).

Results from the UNESCO Questionnaire indicate that progress is well underway in many Member States in the Asia Pacific region and Europe and North America for primary/secondary ESD implementation. In Asia-Pacific, countries as diverse as Lao People's Democratic Republic, Cook Islands, and Brunei Darussalam report that teachers can integrate ESD topics in the schools and that related student programmes and activities are increasing around ESD. There are variations in progress, of course: in some countries, such as Mongolia, work on the curriculum has been undertaken but not yet implemented; in others, such as the Republic of Korea, some curriculum revisions are in place but do not yet influence the whole curricula.

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3   The IBE analysis grouped the diverse terms used to refer to environment-related and/or sustainability themes into broad categories. Sustainable development issues are the most emphasized (mentioned in 23 cases) followed by 'environmental education' (in 17 cases), and finally generic terms referring to the 'environment' or to the environment in combination with other elements (e.g. environmental protection, preservation or awareness, environmental issues, health, safety and risk management) in the remaining 17 cases.

Box 4.2.1.1: Viet Nam – Life skills in the curricula

Viet Nam has included life skills in the curricula. Life skills fall into three categories: cognitive skills (including critical thinking, problem-solving, consequence identifying, decision-making, creative ability, self-awareness, goal setting, and valuing, etc.); skills to cope with emotions (including motivation, sense of responsibility, commitment, stress resistance, emotion control, self-managing, self-supervision, and self-adaptation, etc.); and social, or interactive skills (including communication, assertiveness, negotiating/refusing, positive listening, cooperative skills, sympathy, and ability to recognize other's good will, etc.). Life skills classes address ESD themes and help students become more competent in dealing with the present consumer society and the challenges of sustainable development.

Source: Loc (2004).

Reporting Europe and North American Member States similarly describe the wide range of approaches to ESD implementation, even within individual countries. Belgium, for example, reports that 'schools and institutions in Flanders are free to choose their strategy towards implementing ESD. ESD may be dealt with in specific courses, in separate projects or in cross-curricular courses. Interdisciplinary and, if possible, project-based approaches are encouraged by the authorities' (GME Q Belgium, MS). Croatia reports greater uniformity, noting that ESD is now 'implemented in all primary and secondary schools and applied activities, programmes and projects related to achieving the goals of ESD, exist in the regular and extra work, extracurricular activities, outside classes and through projects' (GME Q Croatia, MS). In Iceland, however, an analysis of early childhood, compulsory and upper secondary education revealed no clear inclusion of ESD in the curriculum, although teachers and schools receive considerable guidance in how to integrate issues related to sustainable development in their lessons and classes (Jóhannesson et al., 2011).

While Arab States on average report significant progress, the range of implementation activities varies widely, from full integration in government education programming (Kuwait) to inclusion in selected courses (Qatar). In Morocco, sustainable development is rarely mentioned explicitly in the curriculum, but the content of learning modules 'clearly introduces the ideas of sustainable development and an environment-friendly culture' (UNESCO, 2013h, p. 41).

Reporting African states suggest, for example, that reorientation of primary/secondary curriculum is still under review in some countries, but in Mauritius, 250,000 students are learning about climate change and the environment in their school lessons and in countries such as Cabo Verde and Namibia, there is an increase in extracurricular activities, such as ecological clubs and fairs, that support ESD activities in the schools.

The levels of effort still needed to implement ESD are perhaps greatest in Africa, with many countries reporting that ESD is still only an 'emerging interest'. The Ministry of Education of South Africa took the challenge on board in that country by creating the National Environmental Education Project to strengthen environmental learning in its official curriculum, which led to the substantive inclusion of environment and sustainable development topics and issues in its curricula (UNESCO, 2013h). Recognizing that curriculum change is only one part of the story, South Africa has recently launched a cooperative governance and implementation programme called *Fundisa for Change* [Teaching for Change] to support teachers to successfully teach and assess SD concerns.

In Latin America, reorientation of the whole curriculum has been achieved 'implicitly' in Mexico and Cuba (GME Q Mexico MS; Cuba MS), and explicitly in Peru, where ESD is now 'included as a critical, transformative and contextual topic throughout the curriculum' (GME Q Peru, MS). Barbados observes that the outcome of full incorporation of ESD (at the CXC and CAPE certificate levels) is that 'the SD uptake has therefore improved' (GME Q Barbados, MS). In this region, ESD is often embedded in curricular offerings in the areas of civic and citizenship education or the social sciences and allotted considerable instructional time. Researchers suggest that this contributes to fairly high levels of civic engagement (both in school and out of school) and political participation (Schulz et al., 2010). Cox Donoso (2010) compared the curricula of six Latin American countries (Colombia, Chile, Dominican Republic, Guatemala, Mexico and Paraguay) and showed that civic and citizenship education at both the primary and secondary levels include a significant number of sustainable development topics.

In systems where primary or secondary schools have some authority over aspects of curricular policy, there appears to be more room for innovation. Local schools and their constituents – teachers, principals and community members are able to develop ESD curricular programmes and initiatives that reflect local circumstances. In China and Thailand, for example, (as discussed in section 3.4 on local policy), policy-makers have allowed local schools to determine from

10% (China) to 30% (Thailand) of the total curricular hours, and this has contributed to the development of local-level ESD content and learning. In Israel, Pizmony-Levy (2011) found that greater decentralization in some sectors of the national school system and a growing number of environment-oriented NGOs led to an increased focus on teaching in and for the environment in primary and secondary education.

This pattern does not suggest that more centralized education systems do little to promote ESD. In fact, there are numerous examples of centralized systems, (e.g. Greece, Cyprus and Italy), that have decided to give special emphasis to ESD topics and approaches across the curriculum. But overall, the **evidence suggests that in contexts where primary and secondary schools have greater flexibility and autonomy to introduce locally relevant content, and secure parental interest and community participation in school-based projects, ESD initiatives and projects are more likely to take a stronger hold**.

At the end of the DESD, the coverage, scope and depth of sustainable development in school curricula have increased significantly around the world. However, ESD implementation is characterized by enormous national and regional diversity in its inclusion, placement and emphasis in the curriculum. This is quite unlike other aspects of official curricular policies, which have become increasingly similar over time (see Kamens et al., 1996; Benavot, 2008). Such variability in ESD offerings is likely to remain the case for the foreseeable future, given the broad purpose of ESD, its connection to national sustainability policies and plans, the disparities in resources and capacity for education system reorientation, and the local context that is so central to ESD delivery.

ESD pedagogies encourage teachers to shift away from traditional pedagogical approaches to learner-centered approaches

While the inclusion of sustainability-related themes into the school curriculum is a key condition for ESD, it says little about the effectiveness of ESD programmes or classroom teaching practices. There is a growing recognition that **effective ESD is contingent on a shift in pedagogical approaches, from traditional teacher-centered pedagogies towards teacher-facilitated and collaborative discovery and problem-solving approaches**.

One of the findings of the 2012 Report on the UN DESD was that 'as ESD progresses, a co-evolution of pedagogy is occurring. It appears that, as the sustainability content of the curriculum evolves, pedagogy is evolving simultaneously' (UNESCO, 2012d, p. 5).

Teacher knowledge about the pillars of sustainable development and the structuring of learning experiences around sustainable development themes are equally important success factors in ESD. In addition, quality ESD learning implies that the needs of individual learners are considered and addressed in developing and delivering lessons (UNESCO, 2012a).

It is also clear that countries now recognize the importance of the learning process:

> ESD is as much about the learning process itself as it is about the knowledge needed to address sustainability challenges such as climate change, biodiversity, and poverty eradication.
>
> — (GME Q Canada, MS)

> ESD teaching methods are important to develop critical thinking which can't be achieved with talk and chalk pedagogies.
>
> — Primary School Teacher, Trinidad and Tobago

Indeed, ESD is expected to flourish when teachers use innovative pedagogical practices (UNESCO, 2012b).

> One of major developments in education reform is the introduction of active teaching methods in schools. The main goal is to move the centre of teaching from teachers to pupils. Teachers become facilitators in the learning process, and not just lecturers. Schools are now given freedom to create a part of school curricula, with 20% of open curricula. The emphasis is put on the activity of pupils.

— (GME Q Montenegro, MS)

Diverse patterns of ESD inclusion in primary and secondary pedagogies can be found at the country level. Japan, for example, has activities addressing participatory, problem-solving learning from the perspective of 'building a better society'. Japan introduced the subject of Integrated Studies (or interdisciplinary/cross-curricular lessons) into the primary and secondary curriculum in 2000 (Maruyama, 2010; Bjork, 2009). This period has provided space for teaching and learning approaches that encourage critical thinking, learner-centered and participatory learning, which are important components of ESD.

Box 4.2.1.2: Japan – ESD pedagogies enhancing learning outcomes

Japan's National Institute for Educational Policy Research found the following evidence from the result of National Assessment of Academic Ability in 2013, which was conducted by MEXT, and covers most of primary and secondary schools in Japan. Students who take Integrated Study seriously (those who have positively responded to the question: 'During Integrated Studies, do you engage in learning activities such as identifying issues, collecting and organizing relevant information, and presenting your findings?') score constantly higher in mathematics and Japanese language than those who did not take it seriously. Although Integrated Studies may also cover topics not directly related to sustainable development, the nature of such inter-relationships between ESD and other content areas – as well as the possible correlation between ESD learning approaches and academic achievement – deserve further scrutiny to make a stronger case for ESD as an integral element of quality education.

Source: Report on the National Assessment of Academic Ability (2013).

In reality, some school systems follow fairly rigid approaches to integrating ESD content in the curriculum while others develop more flexible teaching and learning approaches (UNESCO 2011c). Effective implementation of ESD hinges on the motivation, commitment and support of many stakeholders and institutions (UNESCO, 2011a), including school leaders supporting teachers who implement ESD pedagogies. For example, in Oman, it is reported that the challenge to ESD integration in teaching and learning is the lack of teacher incentives (UNESCO, 2011c). When ESD content and pedagogy lack specification by school leaders, the quality of ESD teaching will depend on the ideology and personality of individual teachers (Stokes, Edge and West, 2001). In such contexts, the smooth transition and implementation of ESD into classroom teaching and student learning is undermined (UNESCO, 2011c). Another example is seen in education systems characterized by an 'overburdened' curriculum or by high-stakes examinations. In these contexts, ESD topics are being positioned in opposition to prioritized subject areas and assessed learning outcomes (UNESCO, 2011a).

In contrast, flexible learning strategies involving, for example, more student-initiated projects, field trips and extracurricular programmes provide schools and school districts with greater degrees of freedom when integrating ESD in the curriculum. In doing so, they enhance ESD's association with quality education, as Sweden, Morocco and Viet Nam have learned (UNESCO, 2013h).

Box 4.2.1.3: Young Masters Programme: Flexible learning approach

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

Source: McCormick et al. (2005, p. 1109).

These examples illustrate the complexities of teaching and learning processes in relation to ESD curriculum content.

For many advocates, the whole school-approach represents a higher level of ESD integration

One salient indicator of ESD mainstreaming in formal schools is the adoption of a 'whole-school' approach. Adopting a whole-school approach moves beyond simply teaching about sustainability in school. It encourages mainstreaming sustainability into all aspects of the school: the inclusion of sustainability as a cross-cutting topic in the school curriculum; the reduction of a school's ecological footprint; the strengthening of student participation in sustainability activities at school as well as in the home and community; and the improvement of school-community relationships in all matters related to ESD (UNECE, 2012c). The support of school leadership, (e.g. school boards and administrators), through systemic overarching policies in funding allocations, hiring, promotion and purchasing, etc. – all crucial factors beyond the prerogative of the individual school – are key conditions for the successful implementation of a whole-school approach (UNESCO, 2011c).

Figure 4.2.1.4: The whole-school approach
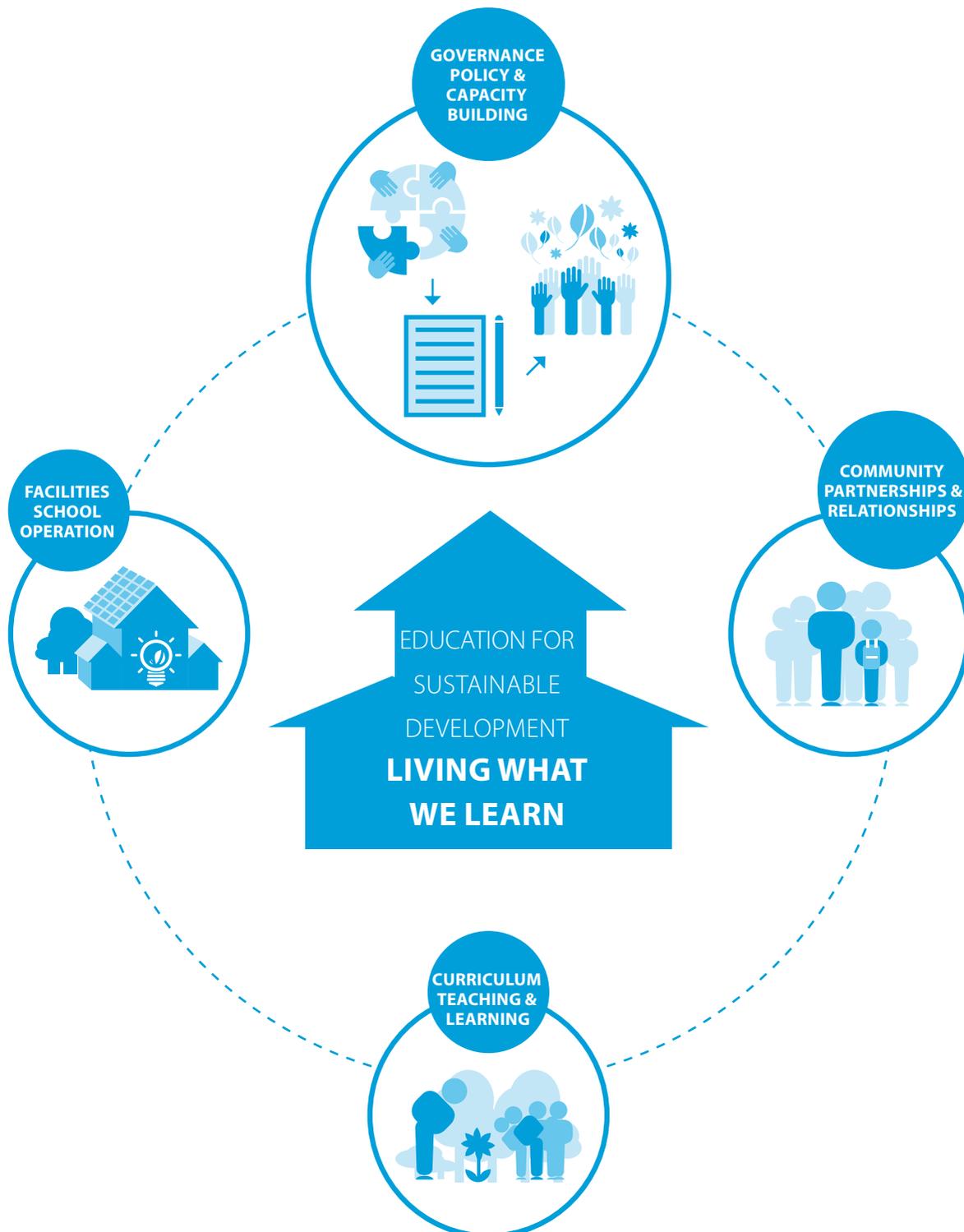
The Australian Sustainable Schools Initiative (AuSSI) is just one example of an effort to encourage schools to take a whole-school, whole-system approach to Education for Sustainability (EfS). First piloted in 2005, this initiative successfully contributed to a growing appreciation of a whole-school approach to ESD. Among its outcomes, it demonstrated: a greater depth and breadth in EfS projects undertaken; an enhanced curriculum integration of EfS; organizational, financial and wider environmental benefits; and links with broader sustainability understandings and goals. In short, participation in AuSSI helped schools to develop a more effective and comprehensive EfS programme (Lewis et al., 2009).

However, the introduction of the whole-school approach varies from country to country. In some cases, it will be driven by national or subnational education policy to secure adoption of the approach across the entire school system. In other cases, promotion of the whole-school approach is achieved with the support of civil society programmes. For example, the Jamaica Environmental Trust's School Environment Programme has helped establish a number of green schools across the country. In Quebec, the *Établissements verts Brundtland* (EVB) movement serves the interests of EE/ESD in that province (GME Q Canada, MS). In other countries (e.g. Indonesia and Kenya) the whole-school approach has been implemented on an ad hoc basis in pilot schools, with some of the pilots being supervised by governmental agencies, others by NGOs (UNESCO, 2011c).

Interest in the whole-school approach appears to be on the rise. The UNECE Steering Committee on ESD (2011) reports that many countries in Western Europe (and many schools in North America) have adopted a whole-institution/whole-school:

> In 2007, less than 30% of those countries that submitted a national implementation report on ESD had developed whole-institution approaches in their countries. In 2010, the number had more than doubled – 63% of all countries participating in the reporting process stated that they were adopting whole-institution approaches to implement ESD. The progress however was not equal throughout the UNECE region.
>
> — UNECE (2014b, p. 4)

Box 4.2.1.4: Bhutan – Green Schools for Green Bhutan Programme

Integrated into the Green Bhutan Programme since 2009, the Green Schools are part of the Ministry of Education's nationwide reform initiative: Education Gross National Happiness. The green school concept has also become an integral part of a Performance Management System (PMS), the goal being the boosting of school performance and the delivery of quality education. The school PMS draws on the schools' self-assessment tools, oriented to take in Gross National Happiness and ESD values and processes.

> Green schools is not just about the environment, it is a philosophy, so we're trying to instil a sense of green minds, which are flexible and open to different types of learning . . . It's a values-led approach to education that stems from the belief that education should be more than academic attainment, it should be about expanding children's minds and teaching what it is to be human [. . .].
>
> — Thakur Singh Powdyel, Bhutan's former Minister of Education

UNICEF Bhutan has partnered with the government to help roll out the green schools initiative and has included a nationwide teacher-training initiative translating the principles of green schools into practice. Thus far, results have been positive: 'Several schools have reported visible and substantial improvements especially in terms of physical ambience, mindfulness, students' understanding of, and regard for, culture, nature, etc.' (Bhutan Ministry of Education, 2012).

Source: Kelly (2013); Bhutan Ministry of Education (2012).

An important component for the implementation of the whole-school approach is the school sustainability plan: a management tool developed in consultation with the school administrators, staff and even students. This tool that outlines the social, environmental and economic objectives for the school and the targets and indicators to monitor performance.

Box 4.2.1.5: Making sustainability a strong focus of school plans

➤ 52% of the 537 Manitoba schools report having a sustainable school plan in place.

➤ 40% of schools in Finland report having a sustainable development school plan in place.

➤ 33% of Australian schools belong to the Australian Sustainable Schools Initiative and 52% of those surveyed in 2010 reported having fully implemented a Sustainable Environment Management Plan (SEMP).

➤ 76% of 17 UNECE Member States report an increase in the adoption of whole-school approaches to ESD.

Source: UNECE (2014d); UNECE (2013b); Larri (2010); Australia Department of the Environment, Water, Heritage and the Arts (2010); UNECE (2012c).

Recognition and certification schemes reinforcing whole-school approaches contribute to sustainability of schools and empower students

During the DESD, various awards and certification schemes have been established to encourage and recognize the sustainability efforts of primary and secondary schools. Eco-Schools is one of the largest of the recognition programmes, awarding certificates to thousands of schools in more than 50 countries around the world:

> Eco-Schools provides a simple framework to make sustainability an integral part of school life that the whole-school can be united behind. These good habits, learned both inside and outside the classroom, automatically follow through into homes and communities.
>
> — Brid Conneely, International Director of Eco-Schools

Eco-Schools help students to experience active citizenship in their school. It benefits the schools through an improved school environment and financial savings, as well as the wider community through increased environmental awareness. Most importantly, it promotes student empowerment. **Currently more than 14 million students and 1.2 million teachers in 58 countries are involved in the Eco-Schools programme, making it the largest international network of teachers and pupils in the world**.

National variations on Eco-Schools abound. As part of the global Eco-Schools initiative, the Wildlife and Environmental Society of South Africa has been managing the Eco-Schools South Africa programme since 2003, in coordination with the Department of Basic Education and with support from the World Wide Fund for Nature in South Africa, Nampak, PetroSA, and the Department of Environmental Affairs. This programme currently provides certification of environmental management and sustainability to 1,153 schools registered with the programme. In 2012, some 840 schools applied for Eco-School recognition and 770 awards were granted (Anderson, 2013).

One national level example is the Sustainable School Award initiative, introduced in 2010 under the auspices of the Greek Ministry of Education. Initially, 140 schools declared their participation – ranging from kindergartens to senior high schools (Kalaitzidis, 2013). As of 2013, the number had increased 'to include 525 schools and thousands of teachers and students, in an effort to introduce the principles and values of sustainable development in the everyday life of the school through a whole-school approach in line with UNESCO's guidelines' (GME Q Greece, MS). In Indonesia, under the Adiwiyata Green School programme, awards are granted to schools that successfully demonstrate the integration of ESD values and principles in their management, curriculum, and learning processes (UNESCO, 2011c).

ESD in schools contributes to intergenerational learning and sustainable development at the local level

Learning at the interface of school and community potentially deepens the learning in school and makes knowledge from books and other forms of media more significant and relevant. When schools engage with the community in this context, it can lead to solutions that benefit both the students and the community. UNESCO's Associated Schools Project Network (ASPnet) school in Pakistan developed a 'Peace and ESD Education Programme' that provides students, school staff, teachers and parents in the community with useful contextual knowledge on topics like respect, cultural diversity, heritage, et al. to students and adults (KNCU, 2009). The Asian RICE project (Regional Initiative for Cooperation for ESD Promotion) brings together UNESCO Associated Schools and their local communities in the Asia region around the role of rice in global sustainable development. The Sandwatch Project (UNESCO, 2012b) exemplifies how students can learn about and contribute to addressing real issues in the community. Sandwatch, a programme involving many regions (e.g. the Caribbean, the Indian Ocean, the Pacific, Africa) focuses on social and environmental issues in beach areas and invites students to seek solutions to their sustainability problems. Another example involves programmes seeking to reduce the risk from natural disasters: schools in the Philippines, a country prone to natural disasters, have established disaster risk reduction education. Such programmes support students and the communities to reduce their vulnerability to environmental risks (UNESCO, 2014a).

The local orientation is so important that teacher education institutions (TEIs) are beginning to incorporate it into the preparation of teachers. Down (2012) notes the emergence of courses through which universities and surrounding communities develop new relationships with in-service teachers and community members, teaching and learning from each other.

Box 4.2.1.6: Jamaica – Pre-service teachers learning through ESD community action projects

Literature and Education for Sustainable Development is a core course for students pursuing the graduate programme in Language Education, and an elective for students in the graduate programme for Teacher Education at the University of the West Indies, Mona, Jamaica. The course aims to introduce students to the concept and principles of sustainable development and to provide them with opportunities to explore the role of ESD in creating a sustainable world. There are three components to the course: 1. A global framework in which students examine local and global sustainability challenges. 2. The study of literature as a means to develop empathy, give students a sense of community, clarify values, understand sustainability from multiple perspectives, and motivate them to act. 3. Engagement in community action projects. As a major assignment, students are required to address sustainability challenges in their community. Students have chosen to address issues of violence, poverty and environmental degradation through peace projects, working with the homeless, school gardening and bee-keeping, to name a few. Students have found the course most useful as they attend to real-world problems and work closely with their communities. They come to understand that they can learn from, as well as help improve the quality of life in their community.

Source: Down (2012).

As another example, South Africa's Rhodes University is working with in-service teachers to align curricula with local issues; as an outcome, teachers and students have strengthened their community's capacity to respond to local environmental issues and risks (Ndaruga, 2004).

Collaboration and networking across schools reinforce ESD

In Indonesia, the *Adiwiyata* programme was designed by the Ministry of the Environment in 2006 to encourage the integration of environmental themes into either core curriculum or as special activities. Schools in Indonesia work together to conduct research and develop teaching materials on both global and local environmental issues, with a participatory and activity-based learning approach. Partnership-building with local government, private companies and NGOs is encouraged (Kalkan and Thoresen, 2012).

Lessons from the DESD also suggest that interaction among schools serves to strengthen the implementation and practice of ESD.

UNESCO's ASPnet is a global network of more than 9,900 educational institutions located in 181 countries. ESD learning projects in ASPnet schools have demonstrated the success of community outreach and partnerships. ASPnet schools often engage in community service as a way of increasing social and environmental awareness. In Indonesia, an ASPnet school project gave the students opportunities to learn about complex ecological issues in local forests as well as the sustainable uses of forest resources (KNCU, 2009). In Japan, as a result of efforts to utilize UNESCO Associated Schools as a base for whole-school approaches to ESD, the number of ASPnet schools has dramatically increased to 705, as of April 2014. In an important expansion of the stakeholder base for ASPnet, ASPUnivNet has emerged as a network of universities (18 to date) that support ASPnet schools and offer intellectual support for their projects.

Teacher preparation for ESD is one of the most important challenges to address in the coming years

There are approximately 73.5 million teachers in the world today (UNESCO, 2010d), representing a significant workforce to be mobilized to advance ESD in primary and secondary education. Early in the DESD, UNESCO identified those who educate and prepare teachers as key change agents in ESD. Teacher educators have the potential to bring about change that will shape future generations and their abilities to create a more sustainable world: they educate new teachers, principals and school administrators; provide professional development for practising in-service teachers; carry out research and contribute to curriculum development. At the end of the DESD, UNESCO Member States have identified teacher education as a high priority post-DESD, in the proposed Global Action Programme for ESD (UNESCO, 2013j).

Teacher education refers to both initial preparation for teachers (i.e. pre-service) and continuing professional development for practitioners (i.e. in-service). TEIs prepare teachers for primary and secondary grades in the formal education system through programmes in secondary schools[4], teacher training institutes, undergraduate degree programmes in schools or faculties of education and postgraduate degrees (MA or MEd) in research universities. In some countries, governments set qualifications or standards for the initial preparation of teachers and for continuing education, while in other countries universities set these standards for initial teacher preparation. Reorientation of teacher education to address ESD would include not only content and competencies, but also promoting an understanding of the values of sustainability as well as the development of reflective practices for continuous improvement.

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4   In parts of the developing world, many primary and pre-primary teachers are trained or certified at the upper secondary level.

ESD in teacher education has increased during the DESD

At the end of the DESD, Member States report that ESD in teacher education is on the rise (from 1.87 in 2005 to 3.40 in 2013). 67% of the 70 Member States responding to the UNESCO Questionnaire report that efforts are being made to include ESD in teacher education, ranging from 'in progress' to 'full implementation'. This is a notable increase from 2005 when only a fifth (18%) were at this stage. Only 12% consider that ESD is still not included, or is only an emerging interest.

Figure 4.2.1.5: Average rating of teacher education in 2005 and 2013 for Member States
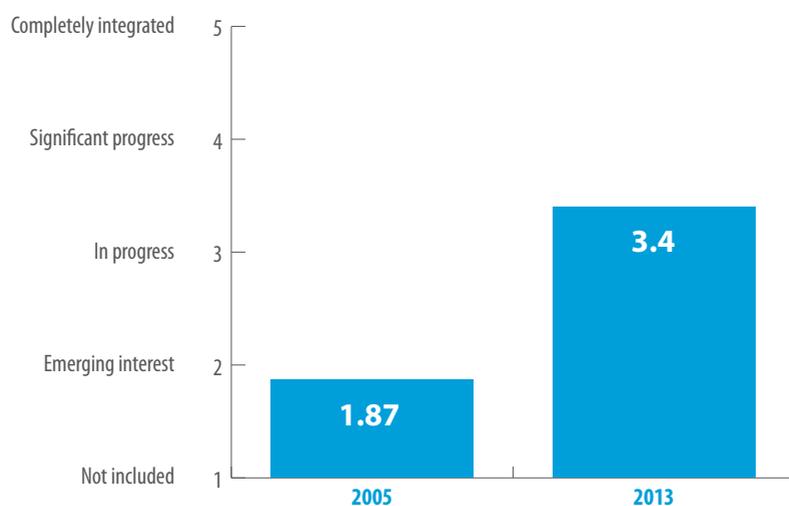
Source: UNESCO GME Questionnaire MS.

Figure 4.2.1.6: Status of ESD in teacher education in 2005 and 2013 for Member States
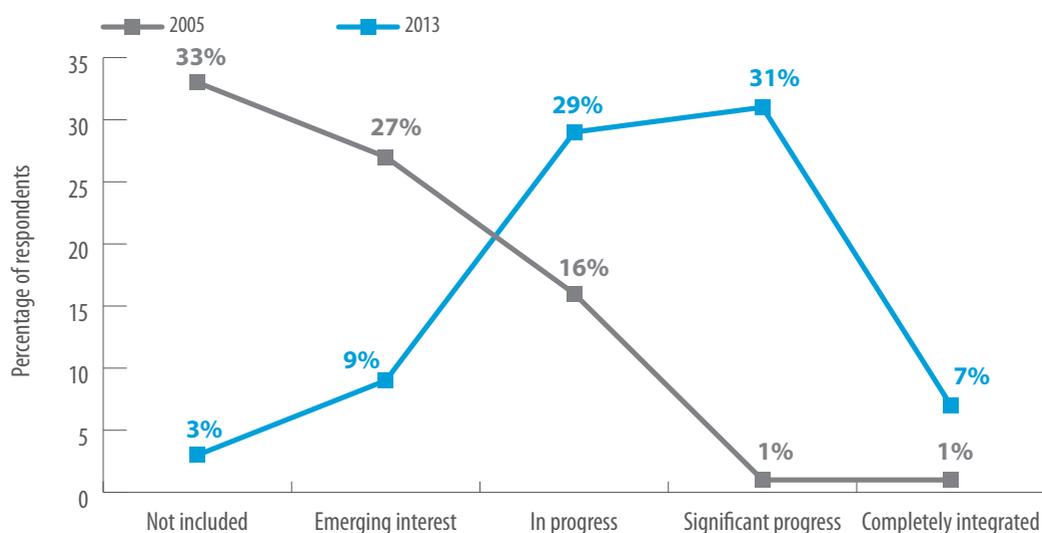
Source: UNESCO GME Questionnaire MS.

According to the UNECE Member State Survey, the majority of the UNECE Member State respondents have ESD as part of teacher education: UNECE reported, as of 2011, 74% of UNECE Member States have ESD in initial training, with 93% in in-service training and 62% in the training of leaders and administrators (UNECE, 2012c). UNESCO's Questionnaire likewise suggests that the Europe and North America region has had the greatest improvement: from below 'emerging interest' in 2005 towards 'significant progress' by the end of the DESD. Asia and Pacific responses were also strong, as were those from Latin America and the Caribbean and Arab States. Africa had the least progress reported, with ESD in teacher education rated as only an emerging interest today. There are, however, innovative programmes in ESD teacher education visible in Africa. For example, the Southern African Development Community ESD teacher education network has engaged with teacher education institutions on ESD curriculum development in 15 Member States, with innovative change-oriented learning results (Mukute et al., 2012).

One tool, which emerged from the DESD, has been the defining of teacher competencies developed through the work of the UNECE Expert Group on Teacher Competencies in Education for Sustainable Development (UNECE, 2012c). Based on a framework of learning to know, learning to do, learning to live together and learning to be, these are beginning to serve to reorient teacher education programmes. Others, such as Wiek et. al (2011), are now working to extend and enhance the UNECE framework.

During the DESD, ESD has been woven into teacher education programmes in many ways. Most inspiring are those in which entire programmes have been reoriented to ESD. As examples, 95% of the curriculum has been revised in the Mongolia State University of Education (GME Q Mongolian State University of Education, KS); in Jamaica, ESD has been incorporated in the curricula in teachers' colleges and in the School of Education, University of the West Indies (GME Q The University of the West Indies, KS); and in the Zimbabwean Mutare Teachers College, ESD has been embedded in all courses of the institution (McKeown and Hopkins, 2013).

The example of Viet Nam provides a model for how this was accomplished. At the Hanoi National University of Education (HNUE), the Centre for Research and Promotion of ESD was established in 2006. The process of integrating ESD into teacher education curricula was achieved in two phases: Integrating ESD (Phase 1) and Doing ESD (Phase 2). The whole education programme was reviewed first, using a matrix to identify themes of ESD for insertion into coursework. This integration was then followed by the acts of doing ESD in a diversity of ways for blended learning (Kwo, 2011). While these examples are inspiring, they have not yet become the norm.

Modifying existing courses within teacher education curricula has been a common approach undertaken during the DESD, usually by individual teacher educators working within their own sphere of influence. For example, in Lesotho 'staff members of the Faculty who are committed to ESD integrate ESD in their own courses' (UCINS, Lesotho – National University of Lesotho). However, while this approach leads towards and supports ESD being piloted, practiced and implemented by individual faculty members, it may not reach those pre-service teachers who do not take those specific courses at the TEI.

Another strategy for moving ESD forward during the DESD has been the creation of new courses that focus on ESD: the Moscow Open Institute of Education, the Hashemite University in Jordan and the Beijing Normal University all now offer individual courses on ESD to pre-service teachers. In a few cases, TEIs have created new certificate programmes and infused ESD into advanced degrees. In 2007, the University of Education in Pakistan created a master's degree in education that has a compulsory course on ESD. The School of Education at Webster University in the US offers a certificate in Education for Global Sustainability (EFGS) as part of the Master of Arts degree in Education and Innovation. In 2009 Sweden's Uppsala University started the programme, Graduate School in Education and Sustainable Development (UNECE, 2012b).

A deeper exploration of the success, impacts and limitations of each of these approaches, including challenges encountered when undertaking whole programme reorientation, should be carried out for TEIs. In general, TEI experts suggest that efforts to reorient teacher education in support of ESD continue to be ad hoc, with the wide-scale, systemic transformation of TEIs yet to take place (Mckeown, Hopkins, 2013). In the years to follow the DESD, more attention is warranted to understanding not only the levers for driving change in TEIs, but also the processes that advance ESD in TEIs, such as collaborative approaches among TEIs, ministries of education and local school districts.

Members of the International Network of TEIs associated with the UNESCO Chair on Reorienting Teacher Education to Address Sustainability have learned, by the end of the DESD, that reorientation of TEIs to address sustainability is

a lengthy process that involves changing attitudes, practices, and choices. Such **changes evolve over time and require patience**. Further, they affirm that **building faculty expertise is essential** – as new concepts and paradigms enter the education community and TEIs' teacher educators have to build expertise to keep pace with change or to lead the change. Finally, **support and commitment from senior administrators are vital** – although ESD is often begun as a grass-roots effort (e.g. within the sphere of influence of one or more teacher educators) – for ESD to go beyond small-scale, individual adoption, support of the upper administration is necessary.

Certification of teachers and accreditation of TEI programmes can be important levers for change

The setting of professional standards for teachers, and the accreditation of teacher education institutions, can be powerful tools for implementing change in teacher education programmes. Changes in accreditation standards serve to mainstream ESD across all TEIs or teacher-preparation programmes in a country and further influence how ESD is approached in classrooms. At the end of the DESD, ESD is beginning to appear in certification and accreditation standards. As one of the seven standards for accreditation of a teacher education programme, The Pakistan National Accreditation Council for Teacher Education now requires evidence that the programme 'links and interacts with its community to mutually support each other to develop and strengthen an equitable society' (UCINS, Pakistan – NCATE). In the US, the State of Washington Professional Educator Standards Board (PESB), which oversees the licensing of teacher education programmes, now requires that all beginning teachers are able to prepare K–12 students 'to be responsible citizens for an environmentally sustainable, globally interconnected, and diverse society' (Legislative Information Center, 2011; Wheeler, 2013). In Scotland, The General Teaching Council for Scotland Professional Standards, in 2013, included a new condition for teachers to have Learning for Sustainability in their teaching and school management. There is now an expectation of a focus placed on sustainability pedagogies and practices within teacher education programmes, so that the teacher can then demonstrate the learning and commitment to the core principles of sustainability in professional practice (Watson, Learning for Sustainability Scotland, 2013).

A systematic way of providing ESD-related professional development to all in-service teachers has not emerged

Seminars and training workshops, as well as in-service professional development programmes, are critical to build capacity among teachers to deliver new curricula and learning outcomes that are ESD-based. However, by the end of the DESD, a systematic way of providing ESD-related professional development to all in-service teachers has not emerged.

There is evidence that professional development programmes for teachers in general can be effective and therefore could be used to advance ESD to in-service teachers. For example, in a 2013 OECD Teaching and Learning International Survey (TALIS), nine out of 10 teachers indicated that they have had professional development in the past year, with more than three-quarters reporting it has had a positive impact on their teaching (OECD, 2014). However, many countries share Australia's experience, in which professional development 'remains largely voluntary which makes the task of introducing ESD to all in-service teachers challenging (Ferreira, Ryan, and Tilbury, 2006, p. 12).

Data collected through UNESCO's GME Questionnaires suggest that ESD teacher professional development opportunities are being provided only on an ad hoc basis, with no evidence of whole-scale change. However, there are some exceptions. Albania reports that 2,500 primary school teachers and 1,000 primary school principals have been trained in environmental education in Albania (GME Q, Albania, MS) and the Republic of Korea reports. 7,000 teachers took part in ESD teacher training (GME Q, Republic of Korea, MS).

These opportunities for professional development on ESD have been more commonly provided by CSOs/NGOs, multilateral organizations and, increasingly, TEIs and educational associations. The involvement of ministries of education in supporting teacher professional development on ESD, in most cases, takes the form of supporting short-term training programmes. However, there are now signs of cooperation taking place in this area between TEIs, CSOs, professional associations of teachers and ministries of education with the potential to lead to more system-wide training and support for in-service teachers in ESD.

In some countries, governments take primary responsibility for capacity-building. In East and Southeast Asia, Thailand and the Republic of Korea have established mechanisms to provide opportunities to in-service teachers for sharing good ESD practices through workshops, training programmes, and conferences organized by government agencies (Didham and Ofei-Manu, 2012). In other countries, capacity-building is undertaken in collaboration with other stakeholders. In the former Yugoslav Republic of Macedonia, the Ministry of Education and Science with the NGO, OXO, developed the programme, **Integration of Environmental Education in Macedonian Education System**, which has trained teachers from all 51 kindergartens, 358 primary and 100 secondary schools (GME Q The former Yugoslav Republic of Macedonia, MS).

In Greece, the Ministry of Education established 46 Centres for Environmental Education and Sustainability under the Regional Directorates of Education all over the country. The projects these centres are running aim at training teachers in order to implement projects related to ESD in their schools. During the 2011 school year, 184 seminars for 8,745 teachers of primary and secondary education took place (UNECE, 2013a).

UNESCO has also provided training, tools and resources to prepare teachers for sustainable development. The UNESCO (2012b) Climate Change Education (CCE) for Sustainable Development course for secondary teachers showed the value of capacity development workshops for teachers to appreciate how to deliver it. CCE, DRRE, and other issues such as biodiversity and sustainable production and consumption require new content matter and new methodologies, such as imagining new futures and predicting possibilities and dealing with complexities and uncertainties, inter-disciplinary learning, field-learning in and with the local community (i.e. community-oriented pedagogy) and greening projects.

There has been a tremendous increase in ESD-related learning materials during the DESD for both pre-service and in-service teachers, which has created opportunities as well as challenges. A tension currently exists between access and quality. On the one hand, readily accessible lesson plans and activity guides, available both online and offline to many teachers globally, have made incorporating sustainability topics of ESD into the curriculum easier. On the other hand, teachers and teacher educators must now expend time and energy to develop skills for judging the quality of readily available ESD materials. This tension is not unique to ESD, but is true across educational disciplines and fields.

Some CSOs/NGOs have begun to address the issue of the quality of resources. For example, Learning for a Sustainable Future in Canada has a website called Resources for Rethinking (R4R)[5] where exemplary classroom resources are reviewed for teachers by teachers. Groen Gelinkt is another example of an information platform that improves the access to and dissemination of the Dutch supply of education in the field of nature, environment and sustainability. Educators can find anything from courses to activities and venues. The structure of Groen Gelinkt facilitates teachers to combine textbook concepts with local contexts (GME Q MEEG member, KS). In addition, Groen Gelinkt enables civil society organizations to post its own events and materials on this information platform. In order to help ensure the quality of the information posted on the platform, educators can rate the materials and activities using a simple star system (1-5 stars). More recently, in Viet Nam, ESD e-learning teacher materials have been made available to 244,478 teachers (in service) 430,100 teachers (in pre-service training). These learning materials were developed in collaboration between UNESCO and the Viet Nam's Ministry of Education and Training

Nevertheless, such efforts cannot keep pace with the rapid expansion of ESD materials, and many materials are not reviewed. This indicates that **ESD has matured to the point where guidelines for the creation and evaluation of ESD materials are needed**.

Although there has been an increase in in-service teacher training in ESD and the beginnings of a broader system of structured support in some countries, many professional development opportunities are still considered one-off, and the need to support teachers long-term by mainstreaming ESD into existing teacher professional development programmes, rather than adding it on, is essential for more systemic uptake. This is not an easy task, as many countries continue to point to limited funding and resources as major barriers to capacity-building and in-service teacher training for ESD (UNESCO, 2011c; 2013j).

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5   See http://resources4rethinking.ca/

Networks help to reinforce ESD promotion and research throughout TEIs

One of the lessons learned during the DESD is that ESD is complex and that partnerships and networks are necessary to promote its advancement. The action research carried out collaboratively by the International Network of TEIs was critical at the beginning of the DESD to develop the *Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability* (UNESCO, 2005b).

There are examples of effective international ESD networks that include TEIs such as the Baltic to Black Sea Circle Consortium, Medies in countries surrounding the Mediterranean Sea and the Southern African Development Community Teacher Education Network. National networks of TEIs have also been formed, such as Teacher Education for Equity and Sustainability in the UK, and Ubuntu in Ireland. These networks provide opportunities for practitioners and researchers to exchange activities, discuss, ask questions and create solutions.

Education for Sustainable Development is making a difference in students' knowledge, attitudes and choices

At the heart of ESD is the reorientation of education as a vehicle of knowledge, values and actions to build a sustainable world. A growing number of programmes are linking learning about sustainability with experiential programmes and practical actions, aiming to establish attitudes and values towards caring for the environment and one another. However, a key challenge will be to assess whether changes in competences, attitudes and choices are, in fact, taking place as a result of the integration of sustainable development concepts and values into the learning process. Assessments at the secondary education level during the DESD highlight the variability of student exposure to, knowledge of, and engagement with various dimensions of sustainable development.

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

Has learning influenced actions? Even more challenging to determine is whether knowledge and learning attainments are leading to sustainability-related choices and actions. There are some promising initiatives in this area: for example, the International Civics and Citizenship Study (ICCS) across 38 countries in 2008 and 2009, sponsored by the International Association for the Evaluation of Educational Achievement (IEEA) has found a positive correlation between citizenship education with engagement of students in active citizenship (Schulz et al. 2010). A South African initiative has linked 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 (UNESCO, 2014a, p. 36).

A Canadian initiative in the province of Manitoba is researching whether it is possible to develop and deploy standardized measures for assessing changes in knowledge, attitudes and choices that might be correlated to investments in ESD. An initial cohort of Grade 10 students completed the survey instrument in 2010, at a time when they would have benefited from only a year or two of exposure to the province's curriculum revisions and capacity-building for ESD across school divisions. The second cohort, surveyed in 2014, has now had exposure to ESD throughout most of their years of formal education. The results for the second cohort, with their longer, sustained exposure to ESD, have improved over the 2010 group of students across all measures of knowledge, attitudes and choices. Further, a correlation is beginning to be seen between sustainability-related levels of knowledge and choices favourable to sustainability: in at least 25% of the response group, knowledge is fairly clearly linked to positive choices. (Michalos et al., 2014).

While more work is needed, research efforts like the ICCS, the South African and Manitoba initiatives are providing important signals that **integrating ESD knowledge into primary and secondary education will indeed contribute to the development of young citizens practicing sustainability**.

Implications for the future

The past decade has witnessed significant and inspiring signs of progress in the inclusion and mainstreaming of ESD in primary and secondary education across all regions. This progress is salient at many levels and in many contexts: in the inclusion of ESD in official curricular guidelines; in the development of ESD instructional materials; in local school initiatives and practices; in the preparation of teachers; and in the assessment of ESD knowledge, attitudes and engagement among students.

Box 4.2.2.1: Suggested actions

➤ **Scaling up of ESD in primary and secondary education** will require further research, assessment and sharing of experience on how curriculum has been approached; effective pedagogies, ESD's relationship to quality education and whole-school approaches, including what has and has not worked.

➤ **More support is needed for teachers in the classroom**. At a practical level, guidelines for the creation and evaluation of ESD materials are needed, to assist teachers in keeping pace with the rapid expansion of ESD materials. Also needed are mechanisms to support knowledge-sharing that empowers local teachers, ESD facilitators and in-service trainers.

➤ **Considerably more work will be needed with TEIs**. A move from ad hoc approaches to institutionalization of ESD in policy, coursework and degree programmes will be necessary to ensure long-term sustainability. The knowledge base of TEIs that have institutionalized ESD in policy and practices will be essential to support efforts of other TEIs as Member States move from localized implementation of ESD in teacher education to wide-scale implementation of ESD post-DESD.

➤ **Instilling ESD in competencies, professional standards, certification and accreditation of teachers and teacher education institutions** might become a powerful driver of change, post-DESD, and should be explored further by governments, TEIs and teachers associations.

➤ **Assessing learning outcomes in students themselves requires particular attention**. Further work is needed as to how ESD is transforming perspectives, attitudes, knowledge and choices, and preparing a new generation of citizens to live and work sustainably.

Technical and Vocational Education and Training

Unlocking the workforce potential
for sustainable development

Highlights

There is convergence between international sustainable development policy and planning and Technical and Vocational Education and Training (TVET) policy and planning (the green economy-green skills agenda).

Knowledge and skills gaps for sustainable development can be filled through not only school-based TVET, but also work-based learning and other non-formal and informal learning.

The reorientation of TVET systems, including curriculum, requires all actors – government, business and industry, and TVET educators – to work together.

Models and tools for reorienting TVET to support sustainable development now exist that recognize the importance not only of the development of skills, but also of mindsets, that can influence change in the workplace and community.

Challenges

Much remains to be done to accelerate the actual implementation of ESD programmes in both formal and non-formal TVET.

Much less is understood about how TVET in non-formal and informal can support transitions to sustainability.

At the national level, the coordination between environment and SD policy and TVET policy remains limited.

Skill shortages impede a smooth transition to green-oriented growth. Changes in occupational profiles and skills for existing jobs that are becoming greener and for new green industries are needed.

TVET: ESD Actions around the World

Kenya is reforming its **vocational polytechnic schools** curriculum to develop skills training that supports sustainable livelihoods.
(Dubois et al., 2010)

Germany's **Vocational Training Institute of the Construction Industry,** North Rhine Westphalia, has made sustainable development compulsory for every apprentice, trainer, expert and member company.
(Pavlova, 2007)

Finland has incorporated sustainable development into all **52 upper-secondary vocational qualifications**.
(UNECE, 2013b)

The Duurzaam MBO network is supporting **TVET schools and teachers** in the **Netherlands** to integrate ESD as a whole-school approach.
(GME Q Duurzaam MBO, KS)

China's Ministry of Education has worked with UNEVOC to revise its TVET curriculum to integrate sustainable development and has embarked on **TVET teacher training**, with many TVET schools now developing their own sustainable-development-related courses.
(UNESCO-UNEVOC, 2009a; 2009b)

Curriculum innovation in **Mauritius** illustrates the essential involvement of both public and private sector interests in **TVET curriculum design**.
(Dubois and Balgobin, 2010)

In **Australia**, a **Green Skills Agreement** has been put in place in 2009 by the Australian state and territory governments and employer and employee representatives. Many community organizations are now involved in supporting the TVET sector for green skilling.
(Government of Australia, 2013)

The reorientation of TVET in **Peru** is advancing through a network of **19 institutions doing work linked with ESD**.
(GME Q Peru, MS).

The **UNESCO-UNEVOC** International Centre for Technical and Vocational Education and Training (UNEVOC) has provided learning and sharing approaches on TVET and skills for sustainable development to more than **2,000 stakeholders** from TVET government ministries, institutions (including schools, colleges, technical universities, and polytechnics), the private sector and development partners around the world.

4.3. Technical and vocational education and training

> The transition to green economies and sustainable societies ... requires not only new regulation, investment and institutional frameworks, but also TVET to engage more systemically in response to the changing job opportunities and skills needs that a green development agenda brings about.
>
> — Interagency Working Group (2012, p.5)

Technical and vocational education and training (TVET) refers to the range of formal and non-formal learning experiences that are relevant to the world of work (UNESCO-UNEVOC, 2013). TVET encompasses more than formal TVET at the secondary level in schools, and includes higher skills training, apprenticeships and workplace skills development, small- and medium-sized enterprise needs, and community-level capacities. TVET for sustainable development provides not only the technical and scientific skills needed to implement sustainability solutions, but also the understanding and mindsets to propose and implement continuous changes and improvements in business, industry and community practices (Majumdar, 2011).

TVET has been considered for some years to be a central process for addressing the economic, social and environmental challenges of our times, with the assertion in Agenda 21, chapter 36, that training 'should have a job-specific focus, aimed at filling gaps in knowledge and skill that would help individuals find employment and be involved in environmental and development work' (UN, 1992: paragraph 36). **One outcome of the DESD is that the understanding of TVET for sustainable development has broadened from an emphasis on skills and employability to a transformation of business and community cultures towards sustainability, enabling TVET learners to become agents of change themselves**. As Fien, Maclean and Park (2008) state: 'The greater the exposure of trainees to sustainability concepts, practices and examples, the more likely the workplace culture change will take place in the future' (p. 56). In effect, investments in ESD in TVET have benefits throughout society, and not only for the learners themselves.

The role of TVET in achieving sustainable development has been reinforced by two Bonn declarations. While the first declaration, *Learning for Work, Citizenship and Sustainability,* highlighted TVET as the 'master key' to improve quality education for life, the second declaration confirmed the role of TVET in achieving goals of sustainability:

> Develop and extend ESD partnerships to integrate ESD into training, vocational education and workplace learning by involving civil society, public and private sectors, NGOs, and development partners. ESD should become an integral part of the training of leaders in business, industry, trade union, non-profit and voluntary organizations, and the public services. Re-orient TVET programmes to include ESD.
>
> — UNESCO (2009b, section 15(i))

During the DESD, actions to advance ESD in TVET at the international level have been led in large part by the UNESCO-UNEVOC International Centre in Bonn with a strong emphasis on exploring the wide range of development, sustainability, education and work philosophies that underpin TVET for SD, leading to three major research

contributions, *Work, Learning and Sustainable Development* (Fien, Maclean and Park, 2008) and *Rethinking Work and Learning: Adult and Vocational Education for Social Sustainability* (Wills, McKenzie and Harris, 2009) as well as the seminal, six-volume *International Handbook for Education and the Changing World of Work* (Maclean and Wilson, 2009). UNESCO's Greening TVET agenda has been developing within the spirit of the DESD, and efforts to promote TVET for SD have expanded as a major contribution to the DESD

Figure 4.3.1.1: Average rating of TVET in 2005 and 2013 for Member States
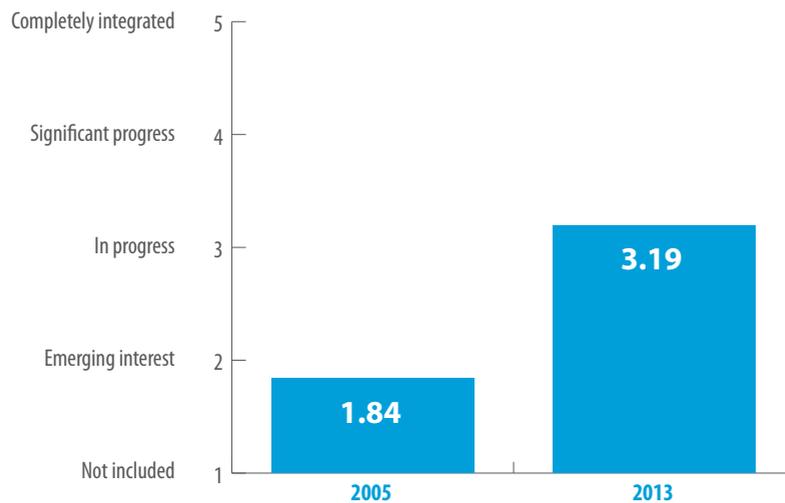
Source: UNESCO GME Questionnaire MS.

Overview of progress

Based on UNESCO's Questionnaire of Member States and other stakeholders, there is some evidence emerging that countries are indeed working to reorient approaches to TVET to support sustainable development and green economy goals, as discussed in the chapters on global policy and national policy. But, in spite of the work preceding and during the DESD at the international level, progress does not appear to be as advanced as in a number of other levels or areas of education. **Member States reporting to UNESCO suggest that policy and planning for TVET is just barely in progress, one of the slowest areas to advance during the DESD** (from 1.84 in 2005 to 3.19 in 2013). A fifth (20%) of Member States indicate that at the end of the DESD, ESD in TVET is either simply not included in policy or practice, or it is only an emerging interest. As Latvia reports, there has been '[no] systemic emphasis; [we] just recently introduced a … specialty module "Green skills"- on sustainable living' (GME Q Lativia, MS).

A slow but gradual movement towards implementation is reflected at the regional level. While Arab States note significant advances towards implementation of TVET for SD (Kuwait, Oman and Qatar all indicate that ESD in TVET has been 'fully integrated'), and Latin America/Caribbean and Europe/North America are 'in good progress', TVET for SD remains only an 'emerging interest' across Africa, Asia and the Pacific.

Figure 4.3.1.2: Status of ESD in TVET in 2005 and 2013 for Member States
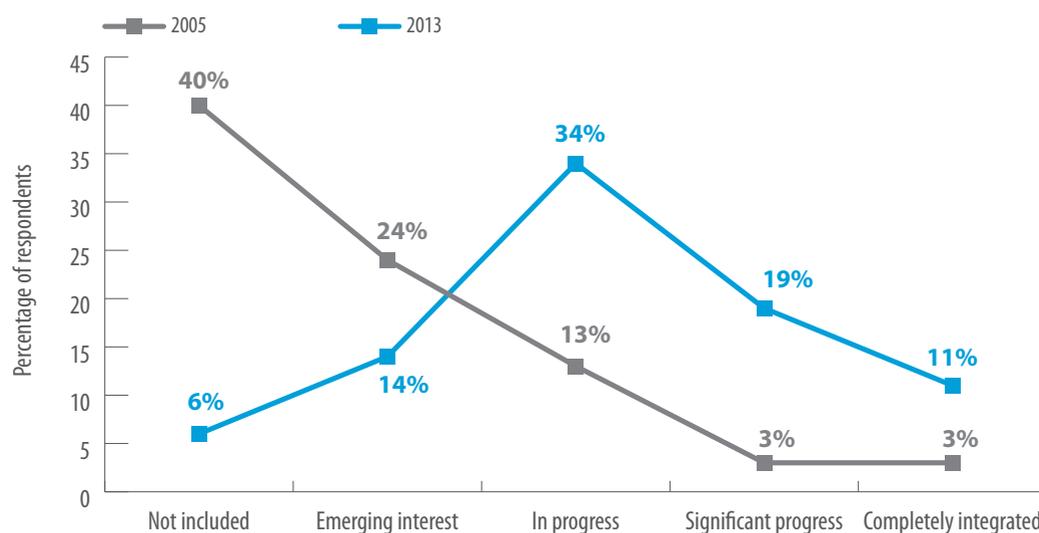
Source: UNESCO GME Questionnaire MS.

However, there are very promising signs of progress in individual countries in the African and Asia-Pacific regions. In Africa, Cabo Verde flags that environmental subject areas are being introduced into TVET (GME Q Cabo Verde, MS). Namibia reports that 'ten years ago there was almost zero knowledge on ESD in TVET, while today there are various activities' (GME Q Namibia, MS). Several years ago, Kenya undertook curriculum reform in vocational polytechnic schools to develop training that more effectively enhances skills for sustainable livelihoods (Dubois et al., 2010). New programmes and initiatives at the school level 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 education in their communities on health, community clean-ups and solid-waste disposal (Dubois et al., 2010).

In the Asia-Pacific region, particularly in Thailand as well as in Viet Nam, UNESCO encouraged discussions early in the DESD on how national TVET systems could advance sustainable development through workforce skills. Now, at the end of the DESD, Thailand reports that ESD has been fully integrated in TVET. China likewise reports that UNESCO-UNEVOC collaboration with the China Ministry of Education has led to important outcomes: In 2005, few of the technical and vocational schools in China had organized ESD activities. However, between 2007 and 2009, the Ministry of Education worked with UNEVOC to review and revise the TVET curriculum to incorporate ESD (UNESCO-UNEVOC, 2009a; 2009b), and embarked on a programme of teacher training with UNEVOC (UNESCO-UNEVOC, 2009c).

Today, China reports that many of the TVET schools have started to develop their own courses as an outcome of the provision of teacher training sessions (GME Q China, MS). In Australia, a Green Skills Agreement was put in place in 2009 by the Australian state and territory governments, and employer and employee representatives, and many community organizations are involved in supporting the TVET sector for green skilling (Australian government, 2013). In the Republic of Korea, employment policies, such as 'social jobs' and 'green jobs', have enhanced technical and vocational education/training in related areas. Such education/training is highly likely to contribute to increasing prospects for employment and enhancing essential life skills (GME Q Republic of Korea, MS).

However, not all countries were such early respondents to the call for ESD in TVET. Pakistan flags that 'progress is limited by a variety of factors. There is a need to concentrate more on TVE with allocation of more resources' (GME Q Pakistan, MS).

The Latin American and Caribbean, and Europe and North America regions are somewhat further along. Indeed, Panama and Costa Rica report full integration of ESD in TVET in the Latin America and Caribbean region. TVET for SD has been advanced in Uruguay through the development of specialized training for ecotourism, with corresponding

positive levels of enrolment across the country (GME Q Uruguay, MS). Chile and Cuba likewise suggest developments in TVET for SD, with Barbados identifying how TVET is encouraging students' innovation in the development of sustainable livelihoods (GME Q Barbados, MS). TVET for SD is advancing in Peru through a network of 19 institutions doing work linked with ESD (GME Q Peru, MS).

Europe and North America recognized the importance of reorienting TVET well before the beginning of the DESD, although respondents to UNESCO's Questionnaire suggest that interest only emerged in 2005, and efforts are still only 'in progress' 10 years later. Only Bulgaria and the Netherlands report full implementation, while Austria reports how early commitments have helped to support ESD in TVET:

> Since 1992 a whole range of trainings on environmental, health and social aspects have been offered in the Austrian vocational education and training system and curricula have been developed accordingly. Environmental education, health promotion, civic education and gender equality are integrated in all curricula as cross curricular principles as well as in subject contents where appropriate. As special developments can be seen: 104 (out of 690) vocational schools have joined the ECO-school network, 34 have reached the National Environmental Performance Award for Schools.
>
> — (GME Q Austria, MS)

Some of the most detailed responses on how integration is proceeding come from Europe and North America. In Canada, in the provinces of British Columbia, Manitoba, Alberta and elsewhere, new initiatives are underway at TVET institutions, technical colleges and other post-secondary institutions that support ESD. Manitoba has a new TVET programme of eight courses focusing on renewable energy technologies in secondary education; post-secondary institutions in British Columbia have developed TVET training programmes in renewable energy technologies and more environmentally friendly operations; in Alberta, sustainability is mainstreamed into the natural resources cluster of the Career and Technology Studies senior high-school programme, but is not yet mainstreamed in other relevant clusters such as trades, manufacturing and transportation (GME Q Canada, MS). In Poland, principles of ESD have been 'included in the content of the curriculum of vocational training' (GME Q Poland, MS). In Greece, 'a series of educational institutions providing Vocational Education, such as the General Confederation of Greek Workers and the Federation of Greek Industries have included ESD in their training programmes. The same goes to some extent also for the Ministry of Labour, and Ministry of Development' (GME Q Greece, MS). In France, the Government in 2013 introduced a roadmap committing it to implement a series of proactive measures around TVET for SD, including a new law passed by Parliament in 2014 on vocational training, employment and social democracy. Moreover, themes of sustainable development have already been incorporated into French repositories on basic technological and vocational training in high schools (UNECE, 2014c).

But Switzerland, Georgia, Germany and others suggest that progress is often limited to individual institutions making some effort. Even in Canada, as one stakeholder comments, 'not all [students in technical programmes] receive sustainability education. In particular, apprenticeship training and very short programmes do not include specific ESD' (GME Q Lambton College, KS).

While Member States' progress on embedding ESD in TVET appears to be fairly modest, at the end of the DESD, the TVET sector may be on the verge of a whole-system change.

Global drivers for advancing ESD in TVET include:

- changes in the physical environment, requiring more technologies and skills for remediation of degraded environments and adaptation to changes in the environment resulting from climate disruption;
- changing international guidelines and government regulations, requiring more capacities for the management of waste, water, energy, building and transportation systems; and
- changes in consumer demand for greener products and services (ILO-IILS, 2011).

In response to these drivers, international sustainable development planners are working with international TVET interests to define the education programming needed to prepare the workforce with the necessary skills and competencies. As the ILO-IILS (2011) argues, sustainable development and the green economy will require that the 'vocational training system be capable of equipping future workers and small- and medium-sized businesses with the requisite breadth of competencies needed to take full advantage of the new technologies' (p.5).

As an outcome of international attention, national TVET systems are beginning to recognize the need for change to support greener economic development. Private sector demands for skilled workers in greening traditional industries and serving new green business are also influencing the reorientation of TVET. **With this growing alignment of global drivers, international interests, national awareness and private sector demand, TVET is positioned for whole-scale change**.

The following key aspects of TVET for SD have begun to emerge from the international discussions, national efforts and academic analyses that have taken place during the DESD.

The reorientation of TVET curriculum requires all actors to work together

As discussed in the policy chapter, the policies needed for advancing more sustainable 'green' economies require parallel advances in technical and vocational education and training policy and planning (the convergence of the 'green economy-green skills' agenda). Central to this is a need for: collaboration across government, business communities and TVET institutions to identify the required skills and competencies, build stronger linkages between business and education systems, and identify opportunities for apprenticeship and internships; government and industry to work together on new standards; government and industry to work with TVET institutions to determine the skills needed to meet those standards; and industry to collaborate with institutions and learners in applied projects, apprenticeships and other means for skills transfer and development.

Box 4.3.1.1: Mauritius – TVET curriculum innovation

Curriculum innovation in Mauritius illustrates the essential involvement of both public and private sector interests in TVET curriculum design. For example, private and public sector stakeholders from the tourism industry helped to put together the two-year diploma course of the Industrial and Vocational Training Board's École Hôtelière Sir Gäetan Duval (IVTB- EHSGD), ensuring that it would prepare middle managers to safeguard and enhance the natural resources upon which the tourism industry depends. The students participate in both field studies in other countries and in projects of local interest, such as cleaning debris in a riverbed, adopting and greening a traffic island, and so forth. This helps to raise their awareness about sustaining the quality of the environment upon which their livelihood depends.

Source: Dubois and Balgobin (2010).

Changes to TVET curriculum that support new 'green' business opportunities are also coming directly from the private sector, where the need for skills may arise well in advance of changes to TVET policy and curriculum. For example, a large percentage of Germany's building stock was built before 1949 and was highly energy inefficient, therefore presenting both a challenge and a business opportunity. As a result, the industry put forward a new goal for the curriculum of the Vocational Training Institute of the Construction Industry, mandating 'sustainable development education for every apprentice, trainer, expert and member company'. It is now compulsory for all in the industry to learn how to identify, source and install new, more efficient materials to save energy (Pavlova, 2007).

These examples illustrate how all actors – government, industry and TVET educators – can come together to reorient the curriculum relevant to specific industry sectors. **Partnerships will be key in advancing knowledge and skills into the TVET curriculum and workplace training for green jobs**.

Greater clarity is needed on defining the technical and vocational skills and competencies needed for 'green jobs' and sustainable development

Figure 4.3.1.3: Key aspects of successful TVET for SD
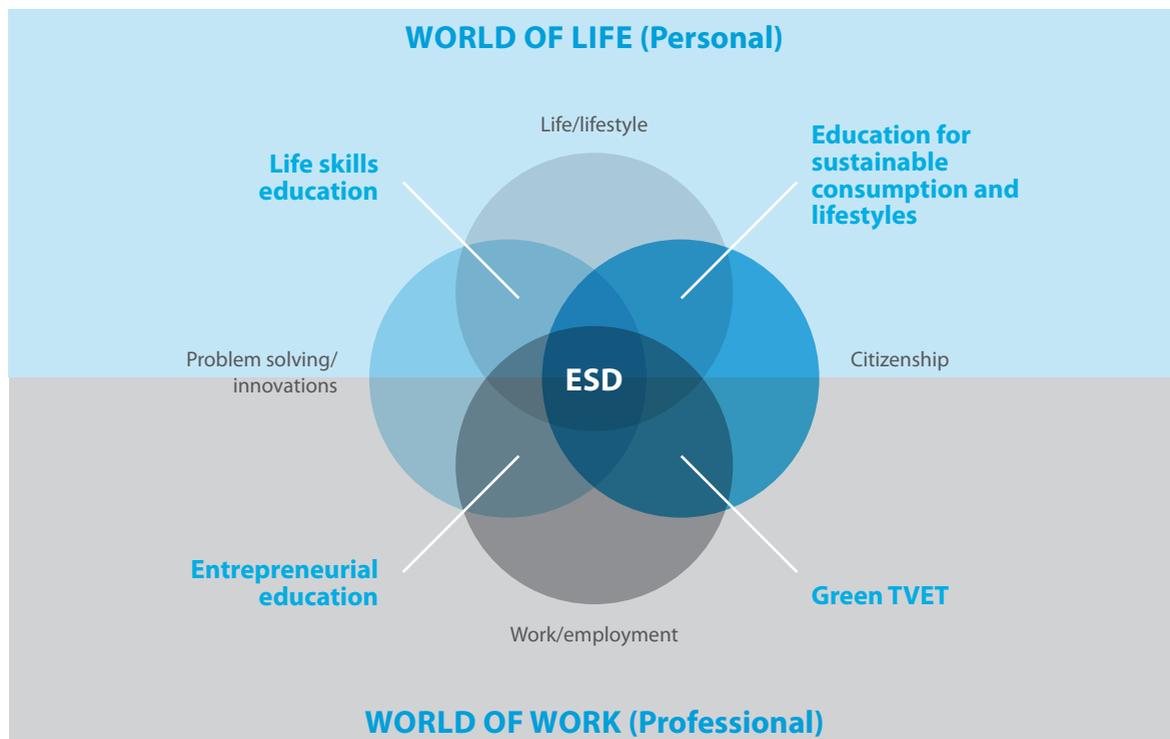
Source: UNESCO. 2013d.

The reorienting of TVET curricula will require an understanding of the full range of skills and competencies needed across all industry sectors. Individual industry sectors (construction, tourism, and others) are working with government and TVET institutions to define and address needs specific to their industry. The European Commission has recently identified two approaches to defining green jobs: the 'eco-industry' approach, in which 'jobs are green by nature of activity', and the 'transformation' approach, in which all jobs need to be 'greened' (European Commission, 2013, p. 7).

Provided working conditions contribute to the criteria for 'decent work' (UNEP, 2008), the message at the end of the DESD is that it is possible for all jobs to contribute to sustainability, and for TVET to prepare learners to contribute to sustainability in all fields of endeavour. As the Interagency Working Group for the United Nations DESD (2012) notes, 'TVET systems need to prepare their learners for being responsible and well-informed producers and consumers, and for being able to act competently, creatively and as agents for sustainability in their workplaces and in society at large.' A key component of TVET reorientation, therefore, is to address not only the development of skills, but also the mindsets that can influence change in the workplace and community (Maclean and Wilson, 2009).

Finland has had some success with ensuring that all TVET learners graduate with an understanding of sustainable development, not just those who will work in 'green jobs'. According to a 2012 evaluation of the Finnish national strategies on ESD, 'Sustainable development is incorporated into all 52 upper secondary vocational qualifications (including a total of 120 different study programmes) as one of the key components of life-long learning. It means that student or candidate has the ability to act according to the principles of sustainable development in her/his profession' (UNECE, 2013b).

Although these general approaches are encouraging, much of the attention in TVET at the present time is on developing specific skills profiles for working in the green economy. Technical skills would include improving resource and energy efficiency, compliance with environmental legislation and the reduction of pollution and waste (ILO and CEDEFOP, 2010). Important transversal skills are also being identified, including strategic management and leadership skills, adaptability, systems thinking, risk management, collaboration, communication, entrepreneurship and the ability to adopt, adapt, implement and maintain skills, as the complexity of these skills increases with the complexity of the jobs (CEDEFOP, 2009, p. 69).

While greater clarity on green skills and technical, industry-defined competencies has been emphasized in the latter half of the DESD, this has led to observations that the reorientation of TVET towards specific skills is too narrow an approach (Fien, 2013). Technical competency and skills-based models identify the practical skills that comprise different occupational profiles and the standards of performance required for successful employment. In general, technical competency-based models of curriculum development and instruction dominate in TVET, which can lead to the adoption of training approaches favouring the imposition of rules and processes rather than the building of capacities for problem-solving and continuous learning (Brown, 1994).

The South African 'applied competence framework', developed during the DESD, may be a starting point to counterbalance this emphasis on technical competence and skills-based models. The South African system promotes the notion of reflexivity: being able to adapt knowledge and practices to new situations and reflect critically on the integrated social, environmental and economic implications of what one is doing (Lotz-Sisitka and Raven, 2008). This has led to an integrated model of training that moves beyond the development of specific skills to encouraging lifelong learning. It is argued that it is only within the context of these transversal, reflexive competencies that broader TVET for SD goals (such as adaptability in the face of change and innovation) will be achieved (Kraak, 1999).

Increased availability of ESD models and tools, including whole-school approaches, are supporting TVET

Tested models and tools for reorienting TVET to support sustainable development are increasingly available to all stakeholders, and a 'Greening TVET' framework is currently being developed to serve as a reference standard in supporting the implementation of TVET for SD (Majumdar, 2011). Research in Sweden has examined leading practices in the diversity of approaches to TVET for SD, and has resulted in an operational model of TVET for SD (Gu, Gomes and Brizuela, 2011). This is based on the whole-school approach. Its elements include:

- curriculum that supports sustainable development attainments in knowledge, skills and attitudes;
- pedagogy;
- partnerships with stakeholders in business and community; and
- sustainability in operations and management of the TVET facility itself.

In a review of international TVET practice, Canadian researchers likewise observed that some of the most successful efforts to reorient TVET have involved a multi-pronged approach that addresses the needs of teachers through training and curricular reform and the needs of students through the use of school demonstrations and applied projects in partnership with local business interests (Taylor and Creech, 2012). Particularly important in TVET is the facilitation of the school-to-work transition, by linking education and skills training directly to local work employment and self-employment prospects, ensuring the availability of apprenticeships and entrepreneurship training and support for sustainable development.

One major constraint to reorienting TVET towards sustainable development is the cost of re-tooling training facilities. The equipment and materials required for training in new technologies and more sustainable vocations can be significant: changing chemicals, using sustainably produced and certified wood, installing equipment for training in solar and wind technologies, all require changes to the budgets and management of TVET facilities.

Not all countries will have the economic means to undertake this scale of retooling, while those that do may gain economic advantage by being able to reorient their TVET systems more quickly to meet the growing demand for green and sustainable technologies and services. Multilateral and bilateral development assistance agencies will need

to work closely with developing countries to ensure that their TVET systems can make the transition to meet their own needs in a timely way.

Building capacity for ESD with all TVET stakeholders is essential to the reorientation of TVET

During the DESD, international agencies have developed and delivered programmes and resources on how to incorporate sustainability in TVET. The ILO's Global Programme on Green Jobs offers a variety of programmes and training projects. UNEVOC has offered an assortment of training programmes for administrators, education ministers and teachers throughout the world, and is developing cross-country networks to facilitate the sharing of best practices in TVET for SD. The UNESCO Regional Office for Asia and the Pacific worked in partnership with the United Nations University in Japan and CSR-Asia in Hong Kong SAR, China, to develop a wide range of case studies and recommendations on private sector involvement in TVET for SD.

TVET-related networks at the national level are helping to enhance the integration of SD into formal education systems. For example, the Duurzaam MBO network in the Netherlands is supporting TVET organizations (schools and teachers) to integrate ESD as a whole-school approach in teaching and learning, school strategy and sustainable campus through various workshops, awards programmes and other initiatives. It also enhances cooperation in regional coalitions of schools, business and (local) government to work in networks on common agenda and challenges. 'The initiative helps to create a real learning LAB for ESD and a 'rich learning environment' (GME Q Duurzaam MBO, KS).

These examples highlight just a few of the important capacity-building initiatives that took place over the DESD. Capacity-building will necessitate improving the amount and quality of training for teaching 'green' skills and ESD pedagogies across TVET systems, including specific skills in such sectors as sustainable design, green building, renewable energy and other low carbon priority areas. But this alone is not sufficient: **TVET educators will also need to work with their learners on generic transferable skills for employability, sustainable livelihoods and citizenship – the social and economic dimensions of sustainability**. Further, building capacity to reorient TVET extends beyond the professional development of the senior management of TVET institutes, and TVET teachers and trainers. The whole-system must be addressed and should include government, business and community enterprises, and their role in all TVET matters, e.g. identifying needs, curriculum development and delivery, assessment and certification.

More needs to be known about how TVET in non-formal settings support transitions to sustainability

During the DESD, more emphasis was being placed on TVET for SD formal education than in non-formal learning situations. While non-formal education meets the learning needs and aspirations of a vast number of learners, including young people and adults at all stages of education, both the 2009 and 2012 DESD M&E reports found that insufficient attention was being paid to learning outside of the formal education sector. However, the latter is an area of growing importance, with particular reference to its relationship to capacity-building for sustainable livelihoods in the informal economy (Langer, 2013).

It has been projected that the informal sector is responsible for producing 50% of GNP worldwide (Langer, 2013) and for more than half of all jobs (as much as 80% in some regions) in the non-agricultural sector (Jutting and de Laiglesia, 2009). But formal TVET systems have so far been unable to provide the necessary training and capacity-building for this scale of activity (UNESCO, 2012e; Walther, 2013; Robinson and Anderson, 2013).

Further, a recent study of 21 countries found that skill shortages were one of the most significant barriers to increasing economic opportunities at the grassroots level, in particular in the social and environmental enterprise sector (ILO and CEDEFOP, 2010). This finding was reinforced in a three-year study of over 1,000 social and environmental small-, micro- and medium-sized enterprises (SMMEs) in developing countries undertaken by the SEED Initiative, which found that one of the most significant barriers to social and environmental enterprise sector success was the shortage of skills at the grassroots level, and that carrying out their own training was a significant investment for these enterprises (Creech et al, 2014).

Examples of successful TVET in the informal economy can be found, although they vary widely in terms of scope, objectives, and outcomes. In Egypt, the Mokattam Recycling School in Cairo provides non-formal learning for out-of-school youth, aimed at improving the living conditions for the community. A recycling centre has been established that combines technical skills for recycling with studies in literacy, numeracy, health, recreation, industrial safety and legal literacy. The recycled containers are converted into granulated plastic which, when sold, allows young people to be paid for each collected bottle. The project continues today, and the older youths from the area are now paid to train young people from other communities in how to recycle. To date, the school has reached approximately 350 children (Baraka, 2012).

Box 4.3.1.2: Colombia – Improving the lives of rural youth
Jóvenes Rurales Emprendedores

The *Jóvenes Rurales Emprendedores* (Rural youth entrepreneurs) programme in Colombia serves the needs of rural unemployed people aged 16 to 25, with a particular focus on vulnerable groups, including displaced persons and indigenous groups. Established by the national apprenticeship agency, SENA (*Servicio Nacional de Aprendizaje*) the programme covers all 1,091 municipalities in Colombia and provides vocational training to promote productive projects ranging from agribusiness to services and industry. Training is supported by strategic partnerships with local and regional governments and with trade unions. Between 2003 and 2009, SENA supported more than 257,000 young people, with an evaluation revealing that the probability of participants starting their own business was between 75% and 88% higher compared with a control group not involved in the programme.

Source: UNESCO (2012f).

Non-formal and community-based TVET training programmes conducted by NGOs for marginalized individuals have proven to be an innovative and effective strategy for poverty alleviation (Fien and Guevara, 2012).

On the basis of their own studies, ILO and CEDEFOP and SEED all argue for a coordinated approach to non-formal TVET in the transition to green growth, especially in developing countries. Efforts should include: entrepreneurship training and business coaching for young people and adults to start up green businesses (ILO and CEDEFOP, 2010); reviewing current employment training programmes to strengthen the skills base at the local level, in particular with respect to new, more environmentally friendly technologies and production processes; and providing programmes for SMMEs to improve their own capacity to deliver a range of training and skills development activities on the ground (Creech et al., 2014).

More research is needed into effective approaches, lessons learned and mechanisms for delivering non-formal TVET at scale. However, it is clear that attention to TVET outside of formal education at national and international levels is increasing. **Wide-scale responses to addressing poverty alleviation, social inclusion and new opportunities emerging through greening economies will need to be grounded in non-formal programming to develop the technical, vocational and entrepreneurial skills needed at the local level**.

TVET for sustainable development lacks a gender perspective

While TVET for SD can be vitally relevant to traditional female occupations (e.g. the reduced use of chemicals in the hair and beauty industry and the development of green office practices in office and administration work), it has grown much more rapidly in traditionally male-dominated industries such as construction, heavy manufacturing, energy generation and transport and logistics. In Creech et al. (2014), women-led enterprises encounter barriers in accessing technical knowledge and expertise. Mertineit (2013) reports exceptions to this trend in countries such as India and Bangladesh where some NGOs are specifically training women to install and maintain solar home systems in rural areas (p. 32). More attention is needed, post-DESD, on how girls and women can participate in further in TVET for SD.

Implications for future actions

Successfully reorienting the TVET sector towards sustainable development will require the continuation, scaling up and mainstreaming of the many efforts reported on during the DESD. As discussed in the global and national policy chapters, a key task will be to strengthen coordination among government agencies to align sustainable development and green economy agendas with education and training policy and planning, in order to ensure that TVET systems can respond quickly to the changing needs of the world of work.

Box 4.3.2.1: Suggested actions

➤ **More work will be needed to encourage the implementation of frameworks and models to support TVET for sustainable development**. This should consist of reinforcing a whole-systems understanding of TVET for SD, including the roles of all stakeholders – government, business and industry and TVET providers. In addition, greater clarity will be needed on defining the technical and vocational skills and competencies needed for green jobs and sustainable development, with particular attention to developing capacities for critical reflection and the adaptation of knowledge and practices to new situations. Further attention to gender considerations in TVET for SD should also be included in this work.

➤ **Support capacity development for TVET stakeholders for SD**. Professional development of TVET policy-makers, senior management of TVET institutes and business and industry employers is an important priority. Appropriate and widespread learning for sustainability among TVET staff worldwide and the development of their abilities to reorient curriculum and work-based approaches to achieve the goals of ESD with their learners is also important.

➤ **More research and analysis is needed** on how TVET in non-formal and informal settings can support transitions to sustainability, together with guidance on how governments, community organizations, NGOs and local businesses can strengthen the sustainable skills base at the local level.

The TVET legacy, at the end of the DESD, recognizes that 'acting in a sustainable way is of significance in every job and sector' (Meriniet, 2013, p. 28). Actions to advance TVET will require upscaling research, capacity-building and implementation to ensure all countries are able to position TVET as a key transition mechanism for a sustainable and inclusive economy.

Higher Education

Graduates for a sustainable future

Highlights

Higher education has stepped up its efforts to support sustainable development.

Higher Education Institutions (HEIs) have made significant efforts to address sustainability in campus operations, supported by the development and sharing of tools and reporting frameworks, followed by various examples of good practice in the reorientation of learning and teaching practices and advances in sustainability research.

New ESD-related specialist programmes/courses are on the rise.

Networks of HEIs build capacity and expand influence on ESD.

HEIs are extending the value and impact of their teaching and research at the local level and catalyzing community change.

Challenges

Translation of commitments into implementation requires coordinated change at multiple levels – in governance, planning, academic programmes, facility management and financial systems.

Deeper innovation in staff development and across institutions is necessary to transform curricula and pedagogy.

Disciplinary boundaries continue to be barriers to the exploration of complex issues, and to the preparation of learners with the capacity to address complexity.

Higher Education: ESD Actions around the World

Spreading across a network of 370 **universities**, the ambition of the **Global Universities Partnership on Environment and Sustainability (GUPES)** is to implement environment and sustainability practices into the curricula. GUPES supports over 10 annual sustainability training programmes involving 300 universities and sustainable development policy-makers.

Through the **Mainstreaming Environment and Sustainability in Africa (MESA)**, a regional network was created with over 100 **academics** from 77 **African universities** in 32 **African countries**, involving 29 **regional and international partners**, to mainstream environment and sustainability into African universities.

COPERNICUS Alliance is a European network of 60 **members** and project affiliated institutions committed to ESD.

Promotion of Sustainability in Postgraduate Education and Research Network (ProsPER.Net) is a network of 30 **higher education institutions** in Asia and the Pacific that have committed to work together.

Alianza de Redes Iberoamericanas de Universidades por la Sustentabilidad y el Ambiente (ARIUSA) includes 13 **national university networks** representing a total of 228 **universities** in 15 **countries** in Latin America and the Caribbean.

17 UNESCO ESD Chairs in the world

4.4. Higher education

> The DESD has enabled the creation of a unique broad based platform to think-out-of-the-box in conceptualizing, collaborating across the conventional boundaries, and more importantly implementing new and creative ideas to further promote sustainability to wider audiences across all sectors locally, regionally and globally.
>
> — Prof. Dzulkifli Abdul Razak (2013), President of the International Association of Universities (IAU)

The reach and potential for influence of the higher education sector in moving the world to sustainable development is significant. Globally, as many as 20,000 higher education institutions work with an estimated 150 million students every year (Ranking web of universities, 2014; Altbach, 2010) – an increase in the student population of more than 50% over the past 10 years. More than 80% of the decision-makers in industry, community and politics are graduates of universities (Scott et al., 2012). Through research programmes, the faculty and students of HEIs work towards innovative policies, processes and technological solutions for sustainability. Demonstrating sustainability on campus sets examples for other institutions, which reinforces an HEI's contribution to sustainable development within its host community. The size and influence of the sector, together with the transformative potential and economic and social value it provides to society, make a compelling rationale for investment in higher education for sustainable development.

HEIs have long been early adopters of the challenge of sustainable development, voicing their commitment to a more sustainable world in the 1990 Talloires Declaration, one of the first efforts to define and promote sustainability in post-secondary education around the world (Huppé et al., 2013). HEI commitments have centered on several major responsibilities: to prepare students for the future; to seek understanding of causes of global challenges and find solutions; and to demonstrate excellence in sustainable development practices through good governance, community relations and the management of the institution's environmental footprint. A growing number of HEIs are putting sustainability plans in place, many of which reflect the characteristics of whole-institution approaches considering curriculum, teaching and research issues, in addition to greening operations.

The last 10 years have seen a sharpening of agendas and greater clarity on the scale and the drivers of changes required for higher education to reorient itself towards sustainability (Tilbury, 2014). This has happened against a backdrop of uncertainty and change. Expert informants for this chapter have pointed to the need in some regions to address more stringent quality measures and more quantifiable research outcomes; other regions have had to deal with funding and service cuts and increasing regulation; while for others, access to higher education has widened and student numbers have increased. These institutions are thus confronted with the dilemma of how best to balance growth with excellence.

Overview of progress

Notwithstanding these challenges, there has been considerable progress in higher education for sustainable development during the DESD. Over 10 major higher education declarations and commitments have emerged during the DESD and have been gaining signatories (see Table 4.4.2.1). These have given substance and credibility to the activities of individual institutions and, in some cases, sustained momentum across the higher education sector (Lozano et al., 2013; Tilbury, 2013). While public commitments by university leaders often outpace tangible institutional changes (Bekessy et al., 2007), the increasing reach of these statements shows that sustainability is working its way into mainstream thinking around universities and their societal role.

Most recently, at Rio+20, higher education leaders, UN Agencies, staff, students and networks came together to profile the contribution of universities and colleges to sustainable development and advocate for the realignment of priorities, funding and activities to support sustainability in higher education. The Higher Education Sustainability

Initiative (HESI), launched at Rio+20 and led by a number of UN agencies, has attracted commitments from university leaders to put sustainability plans in place, infuse sustainability in the curriculum and be transparent about progress through reporting. **Over 270 universities across 50 countries have joined HESI.** As the UN Secretary General affirmed: 'This initiative is transformative, global in reach and could reach thousands of graduates from universities and business schools' (Ban Ki-Moon, 2012). In the Rio+20 outcomes document, *The Future We Want*, governments recognized the need to support higher education institutions to secure the research, innovation and skills that governments will need to advance national sustainable development objectives. The Rio+20 civil society Treaty on Higher Education led by Copernicus Alliance, with support from UNU and IAU, also received signatories from over 100 organizations and institutions across the globe.

Nearly three-quarters (72%) of Member States responding to UNESCO's Questionnaire believe that progress has been made in the higher education sector (from 2.09 in 2005 to 3.31 in 2013); of those reporting advances, nearly half suggest significant progress or full implementation of ESD across higher education. Respondents from Costa Rica, Denmark, Italy, Kuwait, Pakistan and Qatar record the greatest gains in this area since the start of the DESD. Of significance, only 3% of respondents suggest that the higher education sector in their country does not have even an emerging interest in ESD.

Figure 4.4.1.1: Average rating of higher education in 2005 and 2013 for Member States
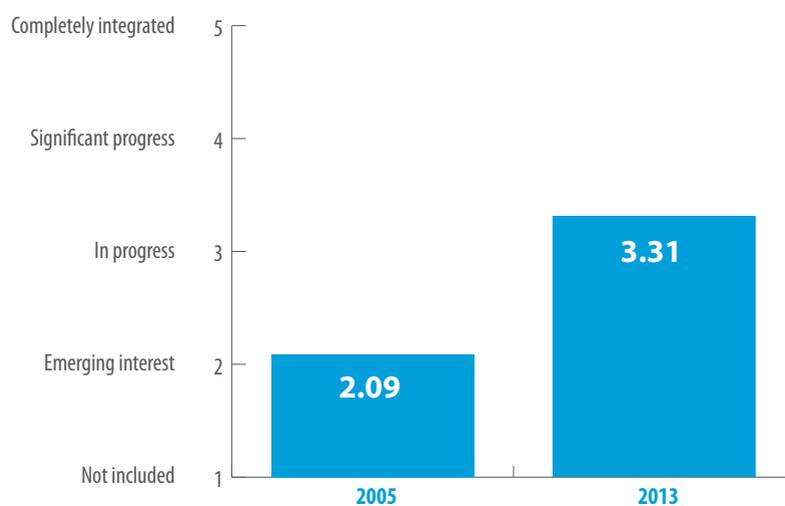
Source: UNESCO GME Questionnaire MS.

Figure 4.4.1.2: Status of ESD in higher education in 2005 and 2013 for Member States
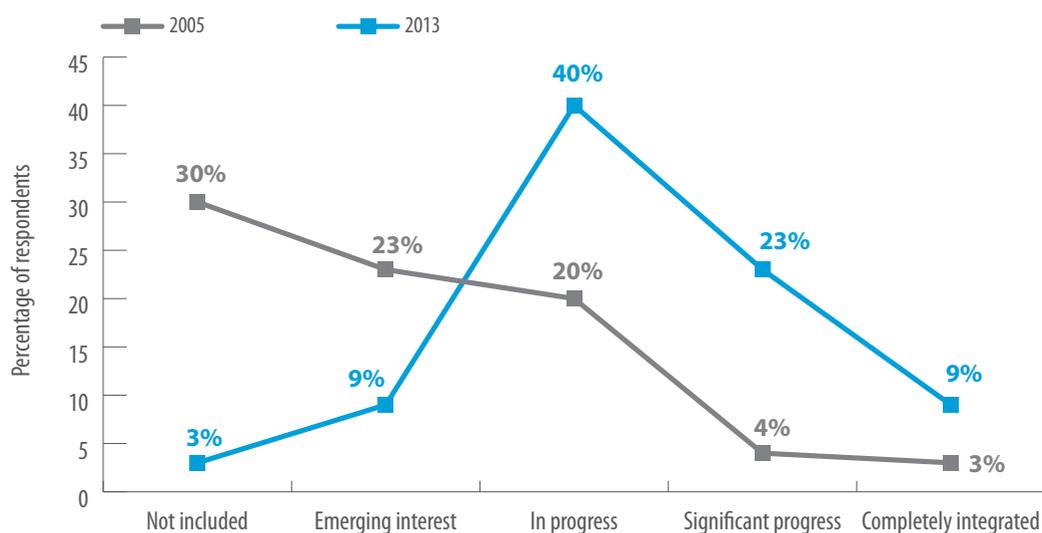
Source: UNESCO GME Questionnaire MS.

Progress varies somewhat across the regions, with Member States suggesting that Arab states are furthest along in reorienting higher education. Jordan reports that Hashemite University has organized workshops in Lebanon, Egypt and Jordan to train staff members on how to integrate ESD themes into university curricula (GME Q Hashemite University, KS). Qatar and Oman both report on ESD in the curriculum of universities, with Oman further noting the funding invested in ESD-related scholarships, internships and other programming.

Latin America and the Caribbean report similar advancement in their efforts. Latin American universities have a long tradition of engaging with environmental resource management and education issues. Saenz and Benayas (2012) provide evidence dating back to the 1950s that Latin American universities were the first to organize themselves to promote environmental sustainability. One expert interviewed for this chapter, Orlando Saenz, the coordinator of the network, *Alianza de Redes Iberoamericanas de Universidades por la Sustentabilidad y el Ambiente* (ARIUSA), points to the high levels of engagement of Latin American institutions: 'In the last ten years, the concept of sustainable development has been an important reference point for higher education institutions in Latin America.'

Responses from Latin America and the Caribbean range from high-level engagement (Peruvian universities have made their own sustainability declaration and institutions in Barbados continue to be advocates for ESD) to addressing specific curriculum and research advances: Uruguay points to its Centre for the Environment at its national university, and El Salvador has seen an increase in sustainable development-related graduate theses and internships. In practice, though, as both Chile and Belize observe, universities in the region have made 'a good start [but have] still a lot to do' (GME Q Chile, MS).

The European and North American respondents suggest ESD advancement in HEIs to be 'in progress'. Much of the evidence of progress on ESD in higher education comes from this region, including early commitments by HEI leadership, the institutionalization of sustainability policies, and the rapidly expanding adoption of sustainability assessment tools, such as the Sustainability Tracking, Assessment and Rating System of the Association for the Advancement of Sustainability in Higher Education (AASHE-STARS).

In some cases, change has been driven by government policy. For example, in 2006, Sweden amended its Higher Education Act, 'stating that higher education institutions have to promote sustainable development to assure for present and future generations a sound and healthy environment, economic and social welfare, and justice' (GME Q Sweden, MS). Government programming, such as the Belgium government's Ecocampus project, also influences the introduction of ESD across a country's HEIs (GME Q Belgium, MS). Through Ecocampus, the Belgium Department of Environment, Nature and Energy is working in collaboration with the Department of Education and Training to bring

together all stakeholders in transforming campuses and preparing students with the knowledge and principles for sustainability (Ecocampus, 2014).

Other countries, such as Finland and Bulgaria, note the autonomy of HEIs in matters of operations and curriculum, but nevertheless suggest that HEIs are beginning to address sustainability: HEIs 'have a strong autonomy in Finland and they are responsible, *inter alia*, for their own curricula. All HEIs cooperate within the national SD forum for HEIs. The implementation level varies between HEIs, some of them are on a very high level of SD integration' (GME Q Finland, MS). Other countries reported the introduction of specific courses and research centres, although, as Georgia notes 'some universities are having special courses; also there are SD centres and ongoing research. Still the whole institutional approach doesn't exist' (GME Q Georgia, MS).

Member States suggest somewhat slower progress in Asia and the Pacific in curriculum, research and management, although important regional initiatives such as the work of the Asia Pacific Regional Bureau of Education have provided strategic guidance and practical tools for ESD in higher education (Elias and Sachathep, 2009; Tilbury and Janousek, 2007). A roadmap for South East Asian Nations to introduce sustainability education into universities by 2015 is being finalized by the South East Asian Ministers of Education Organisation (SEAMEO) (Sharma, 2012). But other countries report only ad hoc responses, such as individual lectures on climate change. Research in Viet Nam suggests that while the DESD has prompted several universities to introduce many small-scale initiatives to enhance sustainability learning and skills for future employability, but that 'it is early days as such initiatives are most often not coherent and not mainstreamed across the university' (Nguyen, 2013).

Reporting Member States from Africa suggest that sustainable development is still only an emerging interest among African HEIs. However, there are important signs of progress across the region. Uganda reports that 'the Regional Centres of Expertise in Mbarara University of Science and Technology and Busitema University are a milestone in terms of achievement for ESD practices' and that some universities have ESD courses, (e.g. Uganda Martyrs University Nkozi, Uganda Management Institute and Busitema University) (GME Q Uganda, MS). In Kenya, the Regional Centre for Expertise-Greater Pwani reports having worked with Pwani University to reorient the curriculum towards sustainable development, with about 30% of university courses covered to date. In 2010 the Global University Network for Innovation (GUNi), the International Association of Universities (IAU) and the Association of African Universities (AAU) jointly carried out a survey of 500 higher education institutions in 41 sub-Saharan African countries to determine what contribution they were making towards sustainable development (Mohamedbhai, 2012). Results suggest that more than half of the respondents are addressing some aspects of sustainable development in a variety of ways, either through teaching, research or operations (GUNi, IAU and AAU, 2011). A recent study by the Southern African Universities Association (SARUA) (2014) shows that universities in southern Africa are responding to climate change across a range of faculties, in spite of limited capacity and resources.

In several countries, challenges remain, ranging from lack of student support (GME Q RCE-Greater Pwani, KS), lack of human resources and infrastructure (GME Q Togo, MS) and a general lack of integration, coordination and training in higher learning institutions (GME Q Namibia, MS). The main barriers identified by institutions in the GUNi/IAU/AAU study are lack of funds, lack of human resources, lack of awareness about sustainable development and inadequate institutional policy on sustainable development (GUNi, IAU and AAU, 2011). As Madagascar reports, 'we are only at the beginning of a journey. What is happening in other countries can provide us with clear examples of how progress can be achieved' (GME Q Madagascar, MS). Despite unequal access to resources, African universities have made good progress. At the start of the UNDESD, few universities had Departments of Environmental Sciences, while at the end of the UNDESD it is possible to identify these in almost all universities.

In every region, the last 10 years have witnessed higher education institutions across continents stepping up efforts to commit to the culture and practice of ESD. The following lessons have begun to emerge from governments, international agencies and networks of HEIs, which have come together during the DESD to help drive change in HEIs.

Leading change for sustainability in higher education presents a significant challenge

While many university and college leaders have signed public charters and declarations, operationalizing these commitments requires change at multiple levels – in governance, planning, academic programmes, financial systems

and physical plant services (Bekessy et al., 2007; Ryan et al., 2010; Sharp, 2002). Other stakeholders have observed in their reporting to UNESCO at the end of the DESD that the leadership challenge must be addressed in order to fully integrate sustainable development across HEIs. This requires addressing all aspects of an institution's teaching, research and operations in a much more coherent, collaborative and systemic process. Stakeholders have learned that where leadership is present, significant advances can be made. For example, the UNEP-Tongji Institute of Environment for Sustainable Development has supported capacity-building in education and training for university educators throughout China, leading to general introductory courses on SD now being offered in more than 300 universities across the country (Niu et al., 2010). The President and Vice Presidents of Tongji University recognize and emphasize the importance of ESD: ESD-related 'courses, teaching programmes, training programmes and research projects have been set up or implemented. In addition, more than 100 students (international and Chinese) have obtained a master's degree in Environmental Management and Sustainable Development' (GME Q Tongji University, KS).

Box 4.4.1.1: United Kingdom – Leadership incentives for ESD

The Higher Education Funding Council for England (HEFCE) has provided leadership, resources and targets for whole-institutional change towards sustainability during the DESD. In 2008, HEFCE produced a strategy and action plan for the higher education sector which provided a framework for sustainable development relevant to the areas of carbon management and estates, curriculum, student engagement and community outreach. Funding was awarded on a competitive basis to some universities to embed sustainability as a whole-of-institution concern. Through grant letters, it can be argued that HEFCE has influenced higher education bodies to identify ESD as a key priority, resulting in investment and activity across the sector. More recently, HEFCE has partnered with the National Union of Students and funded £5 million to support student engagement and learning in education for sustainability across 25 institutions in England. HEFCE's influence has been far-reaching and can explain the depth and quality of progress in this area in England but also indirectly across Wales and Scotland.

Source: HEFCE (2009); HEFCE (2014).

But for many other institutions the leadership deficit continues to impede progress. Moving from commitment to implementation will require leaders with the vision and capability to steer their organizations through a change journey that could be complex, lengthy and with uncertain outcomes. These were the findings of a study funded by the Australian government that analyzed the experiences of 188 higher education leaders from Asia-Pacific, North America and Europe seeking change for sustainability. The Turnaround Leadership study (Scott et al., 2012) concluded that building this type of leadership capability will be necessary to achieve systemic change across the sector.

Elsewhere, a number of initiatives during the DESD have begun to address leadership capacity in HEIs. The Malaysian Higher Education Leadership Academy (AKEPT) advises that the 'top-down approach is needed to complement ground work' (GME Q Higher Education Leadership Academy, KS), and has put in place a programme on sustainable development and nation-building for university leaders on behalf of the Ministry for Higher Education in Malaysia. Over 120 participants from 20 universities have attended these workshops to learn about leading change for sustainability (Sanusi, 2013). The Japan Ministry of the Environment has worked with relevant government agencies to implement Environmental Leadership Initiatives for Asian Sustainability (ELIAS), which includes developing model programmes for sustainability leadership at higher education institutions (ELIAS, 2011). The Association for Promoting Sustainability in Campuses and Communities (APSCC) is providing seminars and conferences for university stakeholders across India, in partnership with the US-based University Leaders for a Sustainable Future.

These recent developments mark step changes in leadership development and, as such, these efforts are helping to drive deeper change across HEIs. However, capacity development for HEI leadership should be considered a priority as institutions begin to consider how to operationalize their international commitments.

Student demand for sustainability-related education is on the rise

Students are looking to learn more about sustainable development. Reorienting the curriculum is not just a supply-side process but will also be driven by demand: students are starting to enter into the tertiary level of their education, well aware of the challenges facing people and the planet, and they want to learn and do more. The former Commissioner for Environmental Sustainability for the State of Victoria, Australia and Vice Chancellor's Fellow, University of Melbourne, believes that student demand is driving leading universities to embed sustainability in courses (Elmes, 2014). The

Vice Chancellor, University of Zambia, considers the 'failure to meet the overwhelming student demand for EE/ESD programmes' is a leading challenge facing the university (Simukanga, 2011). As a stakeholder from the Universidad Externado de Colombia observes, '[Sustainable Development] is definitely one of the areas of interest of the new generations that are entering higher education; there are a few programmes but they are very popular so seemingly, more and more programmes will eventually be offered' (GME Q Universidad Externado de Colombia, KS).

The DESD has inspired more in-depth explorations of student interest. As a contribution to the DESD, the National Union of Students (NUS) on behalf of the UK Higher Education Academy conducted a survey of first-year students over three years, finding consistently that 85% of respondents believed that universities should actively promote sustainable development and that 60% wanted to learn more about sustainability, with a preference for a reframing of curriculum content rather than additional content or courses (NUS and HEFCE, 2013, p. 3).

A 2011 study by *Réseau français des étudiants pour le développement durable* (REFEDD) captured attitudes and engagement levels of 10,000 French higher education students, with results comparable to the UK finding. Students were overwhelmingly in favour of the introduction of sustainable development in their place of education, both in the operation of the campus (92%) and through a seamless integration across all curricula (80%) (REFEDD, 2011).

In all regions, there are signals that students are starting to look for a sustainability-centered education. Monitoring student demand, and the underlying reasons for their interest, will be important for HEIs as they seek to reorient curricula and teaching methods. However, at the present time, student leadership and engagement in sustainability on campus is lower than expected (Tilbury, 2014). There is an emergence of student associations with a primary focus on sustainable development and these have potential to leverage change within institutions and across the sector.

One of the striking examples of student involvement in sustainability issues is Green Impact, an environmental accreditation and award scheme for student unions that has been extended across university administrative and academic departments. Green Impact now reaches over 1,000 institutional departments, collectively comprising over 50,000 staff across 54 institutions in the UK. The student-oriented component of this scheme is the training of student auditors, which has helped students to improve their practical understanding of environmental impact and develop sustainability skills which make them more employable; 800 auditors have been trained since the scheme began. This scheme, supported by the UK's Department for Environment, Food, Rural Affairs, has shown a 15% increase in pro-environmental behaviours among students (Greenimpact, 2013).

Nickson Oiteno (2013), President of the World Student Community for Sustainable Development (WSCSD), reflects on the influence of the DESD on engaging students to shift the thinking and practice of higher education:

> The DESD inspired WSCSD's annual Student Sustainability Summits, Greening U and the Sustainable Village Initiatives through which students are actively engaged in hands-on projects aimed at environmental education, greening their campuses and empowering impoverished communities. Students are no longer regarded as 'spectators' but key sustainability players.
>
> — Oiteno (2013)

WSCSD now has chapters in 100 countries, with an estimated membership of 10,000 students.

Given the volume and growth of student numbers in higher education, much more needs to be done to engage students in the transformation of HEIs, recognizing their capacity as agents of change rather than as simply the recipients of instruction.

Every student, regardless of discipline or career focus should learn to contribute to a more sustainable world

> The fundamental problem faced in meeting the goal of education for a healthy and sustainable society for all students is that the existing curriculum in higher education has not been developed to examine how we shape a sustainable world. Much of the curriculum has been developed to provide students with an increasingly narrow understanding of disciplines, professions and jobs and is focused on specific knowledge and skills employed in a given area.
>
> – ASSHE (2010, p. 2.)

Evidence collected by this study suggests that the DESD has served to raise awareness of the ambitions underpinnings of ESD and has promoted debate about its place in mainstream higher education curriculum. Institutions have responded with a diversity of approaches: some integrate sustainable development concepts in the curriculum; many develop new programme offerings with a specialization in sustainability; while others seek deeper change and the reorientation of education processes and systems to align with ESD. Consistent with Ceulemans, and de Prins, (2010) review of academic research into curriculum practice in higher education, Member States and stakeholders report on new programme offerings that have a specialization in sustainability, as well as more comprehensive initiatives that mainstream sustainable development concepts into existing courses across the curriculum.

Box 4.4.1.2: Africa – North-South partnership: Education for Sustainable Development Africa (ESDA)

As a major initiative to strengthen sustainable development training in Africa, the United Nations University (UNU) is developing three new graduate-level education programmes (Sustainable Urban Development, Sustainable Integrated Rural Development in Africa Programme, and Mining and Mineral Resources Programme) to meet the need for specialist knowledge and professional expertise to address specific sustainable development challenges in Africa. The ESDA Programme is characterized by a number of innovative features, including ownership by leading African universities collaborating to establish a common postgraduate programme on sustainable development; concrete modalities for sharing complementary strengths among the partner universities; and emphasis on field-oriented approaches designed to strengthen problem-solving capacities and inter-personal work skills of postgraduate students. The programmes are in the process of being pilot tested.

Source: UNESCO (2010e, p. 137).

As Wals (2013) asserts, these so-called 'bolt-on' approaches (adding new modules and courses) are prevalent and often meet the critical need for sustainable development skills and expertise. However, there are also examples now of 'built-in' approaches (integrating sustainability across study programmes as well as in staff development) that serve a broader purpose to orient students towards sustainability throughout their lives, regardless of career interest. Research has contributed to case studies and guidance on how university lecturers are beginning to approach curriculum reorientation across a wide range of disciplines, ranging from those more typically aligned with sustainability, such as geography, environmental/earth sciences, and engineering, to the full spectrum of university teaching in social work, health, economics, business, law, performing arts, media and cultural studies, theology, and languages (Sterling, Jones and Selby, 2010). How business schools are addressing ESD is discussed further in chapter 4.6, on Capacity building and training. Teacher education programming is reviewed as part of chapter 4.2, on primary and secondary education.

In Mongolia, major sustainability themes that affect the sustainable development of the country, including human well-being, nature ethics, human rights, social justice and the socio-economic basis of Mongolia, are being incorporated across the whole curriculum of the State University of Education (GME Q Mongolian State University of Education, KS). At the University of Botswana, the learning activities extend 'beyond from course and programme development to change projects within campus' (GME Q University of Botswana, KS). In fact, across Africa, in the 2010 GUNi-IAU-AAU survey, 41% of institutions indicated that they have mainstreamed sustainable development across their various curricula (GUNi, IAU and AAU, 2011).

In other countries, new stand alone programmes are being developed that would be mandatory, ensuring that all students acquire at least an introduction to sustainability concepts and practices: in Honduras, The *Universidad Nacional Autonoma de Honduras* is introducing a mandatory programmme on ESD 'to develop the conscience of all undergrad students' (GME Q *Universidad Nacional Autónoma de Honduras*, KS). Some universities in Cyprus also make it compulsory for students to take one module on sustainable development issues, but they have, in addition, moved towards a more mainstreamed, multidisciplinary approach at the postgraduate level. For example, since 2009, the Frederick University has offered the country's first cross-departmental, multidisciplinary postgraduate programme on Education for the Environment and Sustainable Development (GME Q Cyprus, MS).

In China, both the introduction of new courses and the mainstreaming of ESD throughout the curriculum are taking place in different contexts. At the undergraduate level, new general introductory courses on sustainable development have been developed and are now being offered in more than 300 universities across China (Niu et al., 2010). In advanced degree programmes, experiments are underway to drive sustainable development through whole programmes: the BELL Project, initiated by World Resources Institute in collaboration with Peking University, is working to integrate sustainable development concepts into business, environment, learning and leadership for graduate students at the University.

Nevertheless, comparable to the UNU ESD Africa project, many HEIs around the world appear to focus on developing new stand-alone or specialist courses on sustainable development that cater to those pursuing careers in sustainable development (Ceulemans and de Prins, 2010). University faculties have noted and are concerned about whether this incremental approach will result in transforming students' knowledge and assumptions about their roles and responsibilities in putting the world onto more sustainable pathways. Recognizing the need for a more holistic approach, several universities in Viet Nam have begun to rethink their core mission of teaching and learning in ways that meet the requirements of contemporary times (Nguyen, 2013). In the UK, the Higher Education Funding Council for England (HEFCE) Leadership Governance Management Fund has financed a two-year project entitled 'Leading Curriculum Change for Sustainability' project (Ryan and Tilbury, 2013) to explore the process for curriculum change at five English universities.

The new courses that are being introduced do help to strengthen needed sustainable development skills and expertise. However, while there are good practice examples of sustainable development themes woven across disciplines, more needs to be done to ensure that all students acquire an understanding and commitment to sustainability. Lessons from the DESD suggest HEIs must move beyond providing education and training in the context of sustainable development careers and expertise, and ensure that all students can respond effectively to its challenges throughout their professional and personal lives.

Online learning should be explored further to advance ESD in higher education

The expansion of sustainability in the higher education sector is taking place not only through campus-based programming but also through distance education and online learning models. These models expand the reach of institutions to students who may not be able to attend institutions in person. They also reduce the need for higher education infrastructure and activities such as staff and student travel, buildings for teaching as well as term-time student accommodation (Robin et al., 2008). A 2012 survey of online learning across the US has found that a third (32%) of higher education students now take at least one course online, and 77% of academic leaders rate the learning outcomes in online education as the same or superior to those in face-to-face classes (Babson, 2012)[6].

Experts interviewed for the DESD report have recognized the potential value of online ESD, and Member States have referred to the role of online education in their DESD reporting. Montenegro, for example, highlights as a measure of progress the online courses offered by foreign governments, enhancing the global education of its students (GME Q Montenegro, MS).

Mass Open Online Courses (MOOCs) are one of the most talked about and contested new methods of learning. While few MOOCs target sustainability topics, there is experimentation in this space, with Columbia University's Earth Institute MOOC on The Age of Sustainable Development, as well as a variety of climate change and other SD issue-related MOOCs. MOOCs have the potential to bring thousands of people into a common space, crossing geographic,

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6   For more information, please visit: http://www.babson.edu/news-events/babson-news/pages/130107-2012-survey-of-online-learning-results.aspx

cultural and economic boundaries, to learn together about the future. MOOCs could be a mechanism to promote large-scale change in levels of understanding and actions. They are, however, not without their problems related to knowledge, pedagogy and outcomes (Lotz-Sisitka, 2014). But at the end of the DESD, while key informants believe that online learning has great potential, it also appears to be too early to effectively measure the impact of such initiatives.

Academic staff development and organizational learning are important for creating sustainable universities

UNESCO's 2013 regional consultation reports draw attention to specific calls for actions associated with the development of capacity for tertiary-level educators and academics. Educators in higher education face: i) the need to develop and infuse sustainability curricula, so that students can manage and shape social, economic and ecological conditions that are characterized by change, uncertainty, risk and complexity; and ii) the need to facilitate academic change processes at a programme, departmental and/or institutional level (Hoffner and Tilbury, 2013; UNESCO, 2013f; UNESCO, 2013l; UNESCO, 2013p; UNESCO, 2014c). Individual capacity-building alone is insufficient. More attention is needed to the process of organizational (whole-institution) learning that will lead to the transformation of policies and operations, not just individual course offerings (Sterling, Maxey and Luna, 2013).

Valuable higher education tools have emerged during the DESD that have helped or can help to support educators to address different aspects of organizational change. For example, the Future Fit Framework (Sterling, 2012) and the *Sustainable University* (Sterling, Maxey and Luna, 2013) have practical guidance on ESD pedagogy to support course development; the *Guide to Quality and Education for Sustainability* (Tilbury and Ryan, 2013) identifies ways that ESD connects with quality agendas and curriculum themes; the Australian Education for Sustainability (EfS) portal, hosted by the Australian Research Institute for Environment and Sustainability (ARIES) at Macquarie University, provides regionally relevant research and resources; and Mainstreaming Environment and Sustainability in African Universities (MESA)'s ESD Innovations Course Toolkit lays out the content for a short course on how to introduce ESD to a university, with activities and case studies. These are just some of the several ESD teaching resource banks that have emerged during the DESD.

The last 10 years have also seen a rise in the number of professional development programmes for teaching staff in higher education. At a regional level, international collaborative projects such as the MESA International Training Programme (ITP) are seeking to understand and address staff training needs to support systemic change across the curriculum. In total, 261 university educators have participated in MESA's ITP from 121 institutions in 35 countries (23 African; 12 Asian). A total of 142 change projects have resulted from this initiative (Togo and Lotz-Sisitka, 2009; Rhodes University, 2013). Another example, is the Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE) in Greece, which has supported residential training workshops for university educators in ESD across the North and South Mediterranean since 2010, when it brought together 48 lecturers and academics from 19 countries from the Baltic and Mediterranean regions to help with changing curricula and teaching practice. Most recently, in 2013 it worked with 55 educators from seven universities across Morocco. Mio-ECSDE has helped facilitate dialogue between the North and Southern Mediterranean countries, bridging concerns and sharing good practice (MIO-ECSDE, 2013).

Networks of higher education institutions build capacity and expand influence on ESD

One of the most visible developments helping to advance sustainability agendas in higher education has been the increased collaboration among institutions of higher education. The last 10 years have seen the scaling-up of university networks and consortia that are brokering dialogue and change in the sector.

Prominent groups, such as the Global Universities Partnership on Environment and Sustainability (GUPES); the Mainstreaming Environment and Sustainability in African Universities network (MESA); the Promotion of Sustainability in Postgraduate Education and Research (ProSPER.Net, Asia Pacific); Alianza de Redes Iberoamericanas por la Sostenibilidad y el Ambiente (ARIUSA) (Latin America, Caribbean and Iberia); the Copernicus Alliance (Europe); the Association for the Advancement of Sustainability in Higher Education (North America); the Pacific Network of Island

Universities for Sustainability (South Pacific); and the Mediterranean Universities Network for Education for Sustainable Development, have now become identifiable forces of influence in their respective regions.

HEI networks provide educators with a platform for dialogue, learning and action (Blewitt and Tilbury, 2013). They support capacity-building and help to generate strategies for curriculum change for sustainability, as the following profile illustrates:

Box 4.4.1.3: Africa – ESD networks bridging North-South-South dialogue

MESA was developed through the efforts of UNEP and the African Association of Universities as a flagship programme for the DESD and created a mechanism for African universities to cooperate in co-defining the meaning of ESD in African universities, and obtaining significant practical outcomes. The concept has found strong traction in those institutions where academics have had the opportunity to deliberate and reflect on the meaning of ESD for Higher Education in Africa. This has required ongoing professional engagement and support, most often facilitated by UNEP and, in the latter half of the DESD, by the UNEP/SIDA/NIRAS International Training Programme that linked African and Asian universities with a Swedish partnership, creating a valuable North-South-South dialogue on ESD in higher education.

Source: Professor Lotz Sistika (2013).

In parallel, prominent higher education partnerships, such as the Global Universities Network for Innovation (GUNI) and the International Association of Universities (IAU), have placed sustainability as a core concern of their activities, bringing sustainability into mainstream sector dialogues. This is a significant development that would have been seen as untenable 10 years ago.

Equally, UN-facilitated initiatives such as the Global Universities Partnership on Environment and Sustainability (UNEP GUPES) and the Regional Centres of Expertise in Education for Sustainable Development (UNU RCE) have extended the reach of higher education sustainability initiatives, together reaching an additional 550 universities over five continents in the last 10 years. There have been no evaluation studies that quantify the extent of this influence; however, case studies exist that document how these bodies have created momentum in this sector.

Box 4.4.1.4: GUPES – Strengthening curriculum and research through partnerships

The Global Universities Partnership on Environment and Sustainability (GUPES) promotes the integration of environment and sustainability concerns into teaching, research, community engagement and management of universities, and seeks to enhance student engagement and participation in sustainability activities. GUPES activities focus around three key pillars: education (development of curriculum sourcebooks that draw from and complement UNEP's work on the Green Economy, REDD+, and Climate Change Adaptation); training (over 10 annual training programmes involving over 300 university and sustainable development policy-makers annually) and networking (regional networks in Africa, Asia and the Pacific, Latin America and the Caribbean).

GUPES universities are encouraging community-level research design, paying attention to the way that research outcomes are used for community benefit. They are also engaging students in service-learning and 'real life' problem-solving projects; and forging stronger partnerships with local communities, businesses and development groups to identify priorities for research and development work. Thus, GUPES links education and research to community engagement and outreach.

Source: GUPES (2014).

The important challenge ahead will be to find ways to increase the power and coordination of these regional and international networks so that they can act most effectively to support sustainability within their sector and increase the voice and influence of the higher education community beyond their sector as an important stakeholder in the sustainable development movement.

Interest in sustainability-related research is on the rise

Embedded in many of the international declarations and work plans on the role of tertiary education in sustainable development is the call for research to address the economic, social and environmental challenges facing the world.

HEI research for sustainable development can best be defined as 'all research conducted within the institutional context of a university that contributes to sustainable development' (Waas et al., 2010). Recent investigations have identified two major issues to address in HEI sustainability research. First, a critical look at the intersection of the processes of teaching, learning and research is needed to see what could and should be reformed to strengthen critical inquiry into – and learning about – sustainable development. Second, disciplinary boundaries are barriers to the exploration of complex issues, and to the preparation of learners with the capacities for problem-solving across social, economic and environmental dimensions. In short, a shift from scientific specialization to dialogue among disciplines must be fostered (SEPN, forthcoming).

The African GUNi-IAU-AAU survey reports in more depth on this aspect of HEI sustainability, noting that for 60% of the respondents, research on sustainable development represented 20% to 40% of all research undertaken in the institution (GUNi, IAU and AAU, 2011). While the volume of research may look promising, there is an implementation gap in how that research is communicated and used. For example, less than a fifth of the institutions reported that the research results were published in refereed journals or presented at international conferences, and a bare 10% noted that the research was used for advocacy and policy-making. These findings signal that research on sustainability may not yet be influencing policy and practice. Although data is needed from other regions of the world to complement the African findings, it suggests that more attention should be placed not only on whether sustainability-related research is underway, but how it is being used to influence policy and practice to effect long-term global change. This may prove to be one of the most important indicators that should be added to HEI tracking and rating systems.

As the pace and urgency of global changes increases, so do, societies' needs for knowledge and solutions. This means the role of HEIs as the engines of research and innovation is essential to the cultural, socio-economic and environmentally sustainable development of individuals, communities and nations (SEPN, forthcoming).

Research into ESD itself has increased significantly during the DESD

The establishment of the *Journal of Education for Sustainable Development* demonstrates an important contribution of the DESD in mainstreaming ESD into the academic community. Prior to the DESD, for example, ESD in teacher education research was largely relegated to occasional articles in other issue-based journals such as the *Environmental Education Research Journal*, and other journals covering environmental or global education. Now there are three ESD Journals that have published thousands of pages of insightful ESD and teacher education research (*Journal of Teacher Education for Sustainability, Discourse and Communication for Sustainable Education, and Evigogika*). Other journals have also contributed to ESD scholarly research including, *International Journal of Environment and Sustainable Development, International Journal of Sustainability in Higher Education*, and the *Southern African Journal of Environmental Education*, to name just a few. These journals have contributed to the importance, credibility and acceptance of ESD, and have raised critical engagement with some of the dimensions and dynamics of ESD.

ESD research has also been championed by the efforts of the Regional Centres of Expertise, as well as by networks of ESD researchers and designated research centres. For example, in 2007, Chulalongkorn University, Thailand, established the Research and Development Centre on ESD Innovation in its Faculty of Education. In the southern African region, the Southern African Development Community coordinated a research network on ESD and quality education across 10 southern African universities, which pioneered new concepts of educational quality and practical programme outcomes in schools and communities (Lotz-Sisitka, 2012/13). The University of the South Pacific houses the Pacific Centre for Environment and Sustainable Development, which has a strong focus on ESD research (Nomura and Abe, 2014). Most recently, 2014 has seen the launch of the European network for research on environmental and sustainability education.

> **Box 4.4.1.5:** Canada – ESD research-based partnerships
>
> The Sustainability and Education Policy Network (SEPN) is a research-based partnership between academic research institutions and national/international organizations. From primary to tertiary schooling across Canada, SEPN examines which existing and new policies and innovations offer the most promise for enabling educational change for a more sustainable future, including in relation to educational institutions' approaches to curriculum, research, facilities operations, governance, and broader engagement with community and place. To achieve this purpose, this programme engages multiple communities across primary to tertiary education, regionally and nationally through multi-sector consultation and collaboration.
>
> *Source:* SEPN (forthcoming).

Another recent ESD research initiative, is University Educators for Sustainable Development (2013 – 2016) supported by the EU Lifelong Learning Erasmus Academic Project. The project, recently awarded by the European Commission, involves 55 higher education institutions, organizations and associations in 34 countries seeking pathways for progressing sustainability innovation in the higher education curriculum.

UNESCO Chairs have also been central to the expansion of ESD research. The Chairs were conceived in 1992 as a way to advance research, training and programme development in higher education (UNESCO, 2009a, p. 32). As of December 2013, there are 770 UNESCO Chairs located in 134 countries, 17 of which have been designated as ESD-affiliated Chairs. Several UNESCO Chairs have initiated extensive ESD research and capacity-building initiatives over the course of the DESD (UNESCO, 2010f; UNESCO, 2013k).

Although there has been an increase, Tilbury (UNESCO, 2011a), in an expert review on learning and processes for ESD, observed that 'ESD remains poorly researched and weakly evidenced.' Support for ESD through the research efforts of HEIs will continue to be needed. Additional evidence that ESD is indeed effective, leading to changes in the knowledge and choices of learners, solutions to local, national and global problems and contributions to more sustainable economic development, will help to advance present and future commitments to major policy and curricular changes in ministries of education and other government departments.

Campus operations have made significant advances in sustainability

Early commitments of HEIs to sustainable development often started with the campus itself, to serve as an example of sustainable development in practice, reinforcing what students would learn in their course work and research. Across many hundreds of institutions, changes can now be seen in how HEIs have improved their environmental footprints, through recycling programmes, energy efficiency campaigns and the promotion of greener transportation options. Addressing sustainability in campus operations has included instituting policies and systems for waste and water management, hazardous chemical management, purchasing (including green and 'fair trade' procurement), healthy food on campus, transportation and fleet management and energy needs. Social issues are gaining attention as well. As Croatia reports, 'HEIs and the Ministry [of Education] are making efforts, most notably in the last two years, to foster social inclusion as an integral part of higher education policies and to promote quality of students' life' (GME Q Croatia, MS).

In 2005, when the DESD was launched, there were no systemic mechanisms to build bridges between strategy, academic development and operational issues in the area of sustainability. At the end of the DESD, a range of self-assessment tools are now in use which promote whole-of-institutional approaches to sustainability and often present opportunities for independent validation or certification of performance.

During the DESD, institutions have developed and shared tools to improve their sustainability footprints. Examples include UNEP's Greening Universities Toolkit, 2013; The Higher Education Environmental Performance Improvement initiative[7]; The Green Laboratory Self Evaluation Programme, and the Learning in Future Environments (LiFE) tool. As an outcome of Rio+20's Higher Education Sustainability Initiative (HESI), UNEP has put in place the Platform for Sustainability Performance in Education to support signatories to HESI. The Platform provides access to a range of self-assessment or appraisal tools from both developed and developing regions, including the following: Unit-Based Sustainability Assessment Tool (USAT), developed for use in the Africa/Swedish International Training Programme; the

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7   See http://www.goodcampus.org/

Alternative University Appraisal (AUA) which is supporting an ESD learning community among universities in Asia-Pacific region; the Assessment Instrument for Sustainability in Higher Education (AISHE), originally developed in the Netherlands and applied by institutions in over 11 countries; and AASHE-STARS, now used by over 660 HEIs across North America and beyond. These evaluation instruments are assisting universities and colleges to map progress towards attaining the sustainability milestones they consider to be most important for their institutions.

During the 10 years of the DESD, particular attention has been given by HEIs to developing carbon-reduction strategies, with an emphasis on direct CO_2 emissions from university operations. In the US alone, HEIs contribute approximately 121 million metric tons of greenhouse gas emissions per annum (Second Nature, 2013). More than 180 signatories of the American College and University Presidents' Climate Commitment (ACUPCC) have established programmes to encourage student climate and/or sustainability research, while 82 signatories have included sustainability learning outcomes in institutional General Education Requirements, and 108 signatories offer professional development to all faculties in sustainability education. According to Timothy White, Chair of the ACUPCC Steering Committee, the College of the Atlantic, Colby College and Green Mountain College have achieved carbon neutrality (White, 2013).

The carbon challenge is still substantial for the majority of universities and colleges, as they begin to work on understanding and measuring their emissions (Carbon Trust, 2012)[8]. However, working on CO_2 reductions, particularly with respect to data centre energy needs, is leading to world-class innovations in heating and cooling systems that will influence not only HEIs, but massive data centres operated by the public and private sectors around the world (Zverina, 2010). This demonstrates that applying sustainability research in their own backyard can also serve a broader purpose.

HEI data-gathering and reporting systems capture and benchmark progress and thus inform strategic investment and management decisions. Such mechanisms are essential to the process of building bridges between strategy, academic development and operational issues around institutional sustainability, and should be further developed and promoted in the post-DESD period.

HEIs are extending the value and impact of their teaching and research at the local level and catalyzing community change

The last 10 years have seen a tangible increase in the number of higher education initiatives that seek solutions for sustainability, particularly at the community level (Lotz-Sisitka, 2011; Lozano, 2007; Mochizuki and Fadeeva, 2008; Ryan et al., 2010; Tilbury, 2011b). These have enabled universities and colleges to learn, partner and influence beyond their campus environments. Examples can be found across all UN regions, noted in all UNESCO's regional DESD consultations. UNESCO's 2013 regional consultation on the DESD points to increased activity with regards to socio-cultural work of universities across the Asia Pacific. It records examples from Malaysia, where initiatives have focused on inter-ethnic understanding, peace and social cohesion, as well as the promotion of traditional knowledge (UNESCO, 2013p).

In a recent GUNi report, Lotz-Sisitka (2011) presents evidence that African institutions are making tangible contributions to local communities by addressing issues of peace, security, conflict resolution and HIV and AIDS. Nomura and Abe have observed that in the Asia Pacific region, there is a 'high social demand for universities to contribute to local issues through education and research, particularly in a participatory manner' (Nomura and Abe, 2014). Similar trends were captured by a survey conducted by IAU (2012). It documents, for example, how Handong Global University in Republic of Korea facilitated capacity-building initiatives that linked local enterprises with sustainable development knowledge. In Latin America, interactions with the local community are enriching teaching practice. For example, San Carlos University works through the RCE Guatemala to introduce indigenous knowledge into its academic programme.

University-community research efforts promise multiple benefits to communities and learners, as well as contributions to sustainability research more broadly. As these efforts continue to expand, it will be important to assess whether

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8   The adaptation challenge does not yet appear to be on the radar screen of HEIs: Little data could be found on measures that universities are taking to identify risks and vulnerabilities in their infrastructure, and measures to adapt to climate change. This issue will grow in importance as the climate changes in the coming years.

these benefits are being realized by all stakeholders, and what might be needed to strengthen and scale up such initiatives.

Implications for future actions

The engagement of higher education is critical for the advancement of knowledge needed for sustainable development and for the preparation of current and next generations to put that knowledge to use across all aspects of their work and lives. The last 10 years have witnessed higher education stepping up its efforts to help advance the world towards sustainability. But while much has been accomplished at HEIs on individual dimensions of ESD (leadership, curriculum initiatives and operations in particular), whole-institution approaches will be needed, transforming the curricula, pedagogy, research and operations at the core of higher education and engaging all stakeholders – governing bodies, students, faculty and community (Scott et al., 2012). **At the end of the DESD, HEI pioneers who adopt an integrative 'whole-institution approach' have been the exception rather than the rule**. Full implementation will require deeper innovation in leadership and staff development across institutions.

Box 4.4.2.1: Suggested actions

➤ **In order to advance whole-institution approaches to ESD, leadership development for senior university executives and governors** should be expanded and promoted, including coaching, peer learning, action learning and mentoring support.

➤ **New approaches to curriculum reform are needed**, including capacity-building for academic staff, to move sustainable development beyond a specialist 'career' focus to a learning outcome and lifelong orientation across all fields of study. The increase in student demand for a sustainability-centered education may be a significant driver for changes in curriculum and teaching practice and should be monitored more closely.

➤ **Sustainability-related research should be more systematically tracked**, noting in particular whether and how it is influencing change in policy and practice beyond the institutions. ESD research, as an important area of academic pursuit, should be recognized and supported, and grounded in national ESD research agendas and plans.

➤ **Greening campus operations can be strengthened** through mechanisms to share tools and approaches, including carbon footprint reductions.

➤ **Collaboration and partnerships between university researchers and community stakeholders should be scaled up as mechanisms to deepen learning**, strengthen the knowledge base on local social, environmental and economic issues and contribute to **solutions for local-level sustainability**.

The investment of time and resources in these areas should lead to incremental changes and outcomes. However, achieving a global reorientation of higher education towards sustainable development will require more than the scaling up of existing good practices. Systemic curriculum change is needed, and key to realizing this ambition is academic leadership. Going forward, **ESD implementation should prioritize efforts and professional development opportunities for institution leaders and faculty**. Building capability in this area may well prove catalytic in the quest to reorient higher education towards sustainable development.

Table 4.4.2.1: Higher education declarations and commitments during the DESD

Year	Declaration or charter – Partners involved	Summary
2005	**Bergen Communiqué** European Union (EU) education ministers, European Commission and other consultative members	Calls on EU universities to build upon sustainability principles, references the Bologna Process as a key mechanism to establish a European Higher Education Area by 2010, and that the process should be based on the principle of sustainability.
2005	**Graz Declaration on Committing Universities to Sustainable Development** Copernicus Campus, Karl-Franzens University Graz, Technical University Graz, Oikos International, UNESCO	Stresses the key opportunities that the Bologna Process creates for embedding sustainability across higher education.
2008	**G8 University Summit Sapporo Sustainability Declaration** G8 University Network	Recognizes the need for global sustainability and the responsibility of universities; calls on G8 leaders and societies to respond.
2008	**ProSPER.Net Charter** UNU-IAS	Promotion of Sustainability in Postgraduate Education and Research: Network of institutions (Asia-Pacific)
2009	**World Conference on Higher Education** UNESCO	Calls on governments to increase investment in higher education, encourage diversity and strengthen regional cooperation to serve societal needs.
2009	**Turin Declaration on Education and Research for Sustainable and Responsible Development** G8 University Network	Acknowledges the pivotal role that higher education institutions and scientific research organizations should play in supporting sustainability at global and local levels.
2010	**UNICA Green Academic Footprint Pledge** UNICA Network (Network of Universities from the Capitals of Europe)	Emphasizes the unique position of universities at the different capitals of Europe.
2011	**Declaración de las Américas por la Sustentabilidad de y desde la Universidad** Inter-American Organization for Higher Education	Commitment of universities to assume institutional responsibility to respond to the global environmental crisis and encourage other social actors to do the same.
2012	**The People's Treaty on Sustainability for Higher Education** Copernicus Alliance, 35 HE agencies, associations and organizations	Developed to influence international negotiations and dialogues, it is a formal voluntary commitment of HEIs to Rio+20.
2012	**Higher Education Declaration for Rio+20** UN DESA, UNESCO, UNEP, UN Global Compact, and UNU	Acknowledges the responsibility that universities bear in the international pursuit of sustainable development; identifies actions and encourages them to take a whole-institution approach to achieving a sustainable future.

Source: Tilbury (2013).

Non-Formal Education, Public Awareness Campaigns and Media

ESD is for everyone

Highlights

Non-formal learning opportunities for sustainable development such as community volunteering, programmes with outdoor learning centres and other hands-on experiences have increased over the DESD.

Adult learning and education (ALE) is being recognized in national strategies and planning documents as appropriate means to achieve sustainable development.

Public awareness and media coverage of sustainable development is reported to have improved in many countries.

Social media and online social networks are being used increasingly to raise public awareness on SD.

Challenges

The provision of ALE remains a challenge and impedes progress on introducing concepts and practices of sustainability to adult learners.

An ESD capacity gap exists within organizations and individuals who work with adult learners.

Increased partnerships between civil society and the public sector are needed in order to align and reinforce resources and actions.

Evidence remains limited on the links between awareness raised and changes made in people's behaviour and lifestyles.

Non-Formal Education and Public Awareness: ESD Actions around the World

EXHIBITIONS

The **Science Express Biodiversity Special**, initiated in 2012 in India, intends to raise awareness and understanding of biodiversity. The biodiversity exhibition may be found aboard the train as well as on the railway platform, giving an element of play and fun to the subject. The 40 communicators present aboard the train have been able to impact approximately 4.6 **million visitors over two years, including visits by 10,000 schools**. A survey reports that more than 80% of its visitors showed an increase in their understanding of biodiversity after their visit (Sarabhai and Subramanian, 2014).

AWARENESS

The **Global Survey on Sustainable Lifestyles** initiated by UNEP, **surveyed** 8,000 **young adults aged 18 to 35 from** 20 **countries** around the world with the aim of gathering data on their vision of a sustainable future. The results found that a majority of them ranked well-being, agency and meaning as the most essential foundations to a sustainable outlook. Most young adults also mentioned the need for a more holistic, compelling and pragmatic vision of what a sustainable society may be like (Abbas et al., 2013).

TRAINING

Solar Power! Project managed by the NGO, Tostan in Africa is empowering rural women to attend the Barefoot College, where they complete a training programme in solar electrical engineering. These women then return to train other women from neighbouring rural communities in solar electrical engineering, spreading the impact of the programme and providing each engineer with a means of income. The project provides rural communities with a renewable energy source and women emerge as entrepreneurs in their communities helping to foster sustainable community-led development (Tostan, 2013). 452 **solar panels installed in 9 villages in Senegal. 58 solar engineers have been trained.**

CAMPAIGNS

Earth Hour is one of the largest global environmental campaigns and as of 2014 has engaged 162 **countries** and more than 7,000 **cities**, towns and municipalities to switch lights off for one hour. (http://www.earthhour.org/)

4.5. Non-formal education, public awareness campaigns and media

> ESD is for everyone, at all stages of life and in all possible learning contexts.
>
> — CEE (2008)

The fundamental reorientation of education systems requires changes in all levels and areas of education – not just in formal education but also in non-formal and informal processes so that all citizens, young people and adults alike can learn how to contribute to the goals of a more equitable, environmentally sustainable and secure world.

UNESCO considers non-formal learning as, Education that is institutionalized, intentional and planned by an education provider. The defining characteristic of non-formal education is that it is an addition, alternative and/or complement to formal education within the process of lifelong learning of individuals. It caters to people of all ages but does not necessarily apply a continuous pathway structure; it may be short in duration and/or low in intensity; and it is typically provided in the form of short courses, workshops or seminars' (UNESCO-UIS, 2011, p. 11).

ESD also calls for lifelong learning, acknowledging that peoples educational needs change over a lifetime. Lifelong learning is considered to be:

> The continual acquisition of knowledge and skills throughout somebody's life. Lifelong learning has to do with formal, non-formal and informal ways of learning and occurs in preparation for, and in response to, the different roles, situations, and environments that somebody will encounter in the course of a lifetime.
>
> — Netherlands National Commission for UNESCO (2009, p. 10)

Informal education includes the raising of public awareness for sustainable development, throughout work, family life and leisure. Raising public awareness encompasses a wide range of means: print and online media, television, radio, campaigns, street theatre, social media, viral messaging, (i.e. anything that can be done to inform the general public). Raising awareness may not by itself lead to changes in choices and societal outcomes, but it is the first in a continuum of communications and education strategies that aim to facilitate deeper understanding and learning in order to influence attitudes and values, and ultimately enable actions (Scott and Gough, 2003).

As an outcome of international civil society efforts, government sustainability planning and green business initiatives, many public-awareness-raising and consumer information efforts were underway well in advance of the DESD itself. However, the DESD has provided an opportunity to review progress on public awareness for sustainable development, and to learn from 10 years of enhanced attention to inform and engage citizens. It has also provided an opportunity to reflect on how ESD has influenced the concepts and practices of non-formal education, paying particular attention to adults, and provides insight into developments that have taken place within Member States during the DESD.

In the final UNESCO DESD Questionnaire, Member States and other stakeholders were invited to report on a wide range of activities for non-formal education, with a view to capturing progress on those activities that complement and extend beyond formal education. Member States were also asked to report on public awareness raising and media engagement in an effort to capture informal education efforts.

Overview of progress

> Non-formal learning will become more and more important in the next decade.

Non-formal learning

In response to UNESCO's Questionnaire, Member States' data suggests that there has been progress across all types of non-formal education (from 1.94 in 2005 to 3.47 in 2013). While non-formal education meets the learning needs and aspirations of a vast number of learners, including young people and adults at all stages of education, both the 2009 and 2012 DESD M&E reports found that insufficient attention was being paid to learning outside of the formal education sector. In 2005, out of 70 Member State respondents, fully half (50%) reported that work on non-formal approaches to ESD was either not included in their work or was only an emerging interest; and less than 5% had achieved either significant progress or full implementation. By the end of the DESD, a third (33%) state being in the midst of significant progress, and in some cases at full implementation, with less than 10% still to start actions. While the progress reported by Member States is encouraging, it may not reflect the full picture of non-formal education, as responsibilities for non-formal education and adult learning may rest with departments other than those who responded to the Questionnaire.

Figure 4.5.1.1: Average rating of non-formal education in 2005 and 2013 for Member States
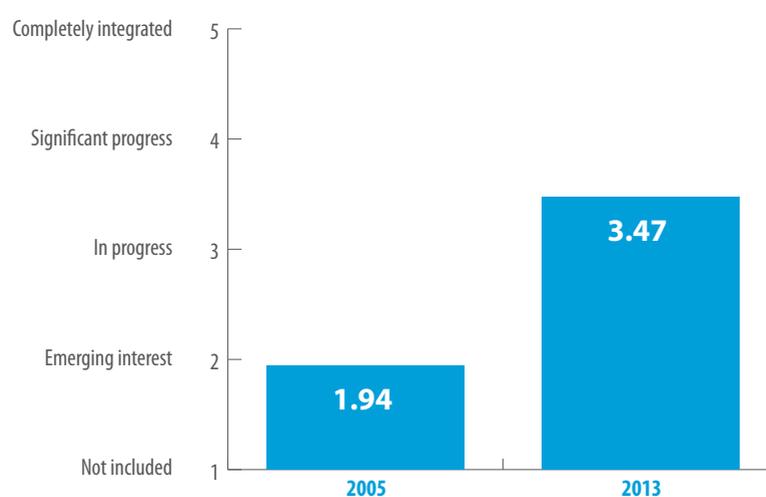
Source: UNESCO GME Questionnaire MS.

Figure 4.5.1.2: Status of ESD in non-formal education in 2005 and 2013 for Member States
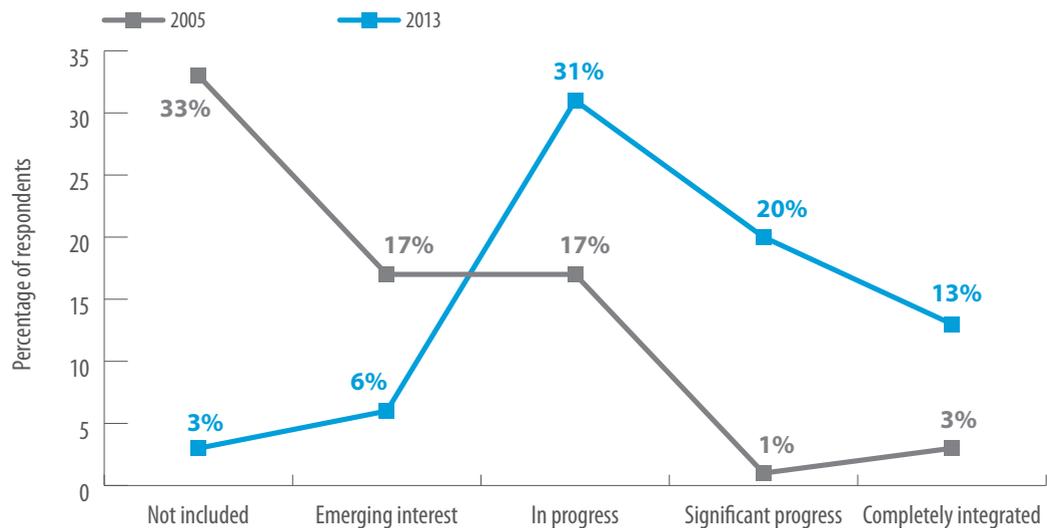
Source: UNESCO GME Questionnaire MS.

Non-formal education supports ESD in schools

Comments provided by Member States and other stakeholders suggest that non-formal education is largely considered as support provided to schools to complement ESD in formal primary and secondary education. For example, Uzbekistan reports that courses for pupils on ESD were organized in 211 youth centres, *Barkamol avlod*. More than 30 learning materials were elaborated for *Barkamol avlod* centres such as conducting courses about the climate and ecology (GME Q Uzbekistan, MS). The Ministry of Public Education of Uzbekistan reports over 105,000 students attended these centres in 2013. Georgia reports NGOs that are promoting ESD through non-formal education are mainly helping schools to establish eco-clubs. Some of them are conducting different activities, (e.g. meetings, workshops, seminars, and TV programmes, etc.) for school children, the general population and other interested groups. (GME Q Georgia, MS). Cyprus provides a more in-depth response to link non-formal and formal education:

> Taking into consideration that non-formal education and formal education are closely connected, the programs implemented in the communities through the Environmental Education Centres provide the opportunity for students and teachers to investigate an issue outside of the school and consequently expand upon it further within the classroom. During the investigation of the sustainable consumption and production issue, students have the opportunity to visit and work experientially in local trades through non-formal education programs, jointly and in practice with professionals, interacting and learning with them through first-hand experience. Through non-formal settings, students learn how to be responsible consumers.
>
> — (GME Q, Cyprus, MS)

Box 4.5.1.1: Brazil – Spring's Seeds: Exercising citizenship since childhood

Seeds of Spring acknowledges that children and adolescents are citizens with a voice who can actively participate in the life of schools and the city in which they live and can contribute to building more socially equitable and sustainable societies. Their contributions are integrated in school projects and in the city's educational policies emphasizing education as a right of children and youth. The proposals made by the children and young people participating in the project are based on observations and discussions, taking into account local problems and realities. To stimulate attitude and behaviour changes throughout the school community, suggestions and proposals are incorporated into the Eco-Political-Pedagogical Project of Osasco's educational units to ensure that the different social actors are involved in implementing these actions. Currently, 134 schools are participating, including up to 9,500 students from six to 12 years old in this project.

Source: Favaro (2012).

Overall, non-formal ESD initiatives and resources targeting youth have been important in raising awareness of sustainable development issues. In particular, the above examples link sustainable development issues with unsustainable consumption, citizenship, as well as other topics, and help to empower youth to work with each other and with their local communities. These types of non-formal initiatives are noteworthy in promoting change or action projects at the personal and community levels. Non-formal education initiatives also provide an alternative pathway to learning and have, over the years, helped to fill gaps in access to and quality of formal education systems.

Non-formal learning opportunities in natural environments that provide first-hand experience or exposure to nature have increased over the DESD. Many non-formal educational institutions such as zoos, botanical gardens and national parks have either initiated new programmes or reoriented their programmes to include ESD components to deepen understanding and develop a sense of place. National parks, heritage sites and protected areas are used as hands-on learning sites. Viet Nam describes the biospheres established in the Man and Biosphere (MAB) programme 'as Learning Laboratories for ESD, providing an ideal framework for the capture and uptake of lessons' (GME Q Viet Nam, MS). In Spain, the Urdaibai Biosphere Reserve programmes and activities have involved 13 schools in the School Agenda 21 Programme of Urdaibai, with almost 5,432 children active in the reserve.

Box 4.5.1.2: The Lake Victoria Catchment Environmental Education Programme

The Lake Victoria Catchment Environmental Education Programme led by WWF aims to empower catchment communities, schools and regional partners in sustainable use and the management of natural resources. The project promotes knowledge and skills among communities within the Lake Victoria catchment to make informed decisions on the management of their environment. This is done through teacher training and the involvement of local school children. The programme has strengthened the capacity of teachers and teacher trainers in delivering environmental education as part of their daily educational activities. This includes the development of various environmental education materials. Raising awareness and understanding on the conservation of freshwater ecosystems, capacity-building on the topic of conservation for riparian communities and the creation of a partnership mechanism for environmental education.

Source: WWF (2010).

As UNESCO's Questionnaire stakeholder reporting illustrates, NGOs, governments and other institutions have been very active in delivering non-formal ESD programming to children, youth and adults. However, in most cases the responses' lack of detail prevents more insightful analysis on the types and efficacy of the support.

Non-formal education for adults as a means to achieve sustainable development

In addition to non-formal education as a support and extension of ESD in schools, it also encompasses adult learning and education, including outreach to those who have had limited or no access to the formal education system. Many stakeholder respondents to the UNESCO Questionnaire report a direct involvement in non-formal adult education. Stakeholders based in Peru, India, Nicaragua, Canada, Denmark, Germany, Turkey and Australia described a range of non-formal ALE programmes supporting ESD, such as the Montfort Social Institute in India, which has made ESD a central part of its efforts in training programmes and grassroots work among the urban poor in 15 towns and cities.

Modules have been developed to train leaders of urban poor communities in sustainable living that respects human rights, sustainable use of resources and the right to sustainable development (GME Q Montfort Social Institute, KS).

Other stakeholders based in Panama, South Africa, Algeria and the Philippines extended their ESD work in formal systems to educating adults in communities. In the Philippines, for example, 'teachers and students go out to the community to train youth and other adults on ESD concerns and thus help improve the community' (GME Q Leyte Normal University, KS). One example in Senegal involving peer-to-peer learning stands out as ESD community-based learning:

Box 4.5.1.3: Tostan – Empowering rural women in Africa

The NGO Tostan based in Senegal, provides basic, non-formal education programmes in eight African countries in over 3,000 communities in their national languages (GME Q Tostan, KS). In one particular project, Tostan works with the Barefoot College in India to address the issue of limited access to electricity in rural areas by empowering women from rural Africa to attend the Barefoot College, where they complete a six-month training programme in solar electrical engineering. These women then return to train other women from neighbouring rural communities in solar electrical engineering, spreading the impact of the programme and providing each engineer with a means of income. The project provides rural communities with a renewable energy source and women emerge as entrepreneurs in their communities. 'Evaluations have shown that this programme leads to sustainable community-led development.'

Source: Tostan (2013).

Another example that helps adults learn good practices for a sustainable way of life is the Namib Desert Environmental Education Trust (NaDEET), which is inspiring Namibians to participate in finding viable solutions to local and national environmental issues in order to create a healthy and sustainable future for all. In addition to providing desertification education to schools and communities, NaDEET´s adult community group programme was launched in 2010. NaDEET is now engaging older members of the community to help implement the change. Adults are learning to use solar ovens for cooking, thus avoiding wood collection. So far, a total of 200 community members have been trained. Participants are mostly well-established community members who are willing to drive change in their communities (Shigwedha, 2012).

Progress on non-formal adult education may have been underreported through the DESD M&E instruments. Parallel events and other research during the DESD suggest that this is in fact one of the areas of education where there is evidence of considerable progress in support of sustainable development.

The DESD reinforced awareness that ALE could provide a core contribution to achieving sustainable development and was instrumental in further promoting the key values of sustainability into ALE concepts and practices. National level ALE policies are increasingly supportive of broader sustainability goals.

Adult learning and education policies across all regions have tended to be concerned with vocational training and skills upgrading, with a view to helping adults obtain qualifications and contribute generally to national economic development. Previous International Conferences on Adult Education (CONFINTEA) have emphasized the importance of a literate, educated citizenry to economic growth. During the DESD, the sixth International Conference (CONFINTEA VI), in 2009 in Belém do Pará, Brazil recognized and promoted the role of adult learning specifically for sustainable development in the Belém Framework for Action:

> Adult learning and education equip people with the necessary knowledge, capabilities, skills, competences and values to exercise and advance their rights and take control of their destinies. Adult learning and education are also an imperative for the achievement of equity and inclusion, for alleviating poverty and for building equitable, tolerant, sustainable and knowledge-based societies.
>
> – UNESCO-UIL (2010a, p. 6)

Member States are being guided by the Belem Framework in the development of their ALE programming.

As part of monitoring actions in response to CONFINTEA VI, UNESCO explored the intersection of ALE and sustainable development in the second Global Report on Adult Learning and Education (GRALE II), drawing from 141 national reports (UNESCO-UIL, 2013[9]).

Table 4.5.1.1: Adult education included in a sustainable development strategy

	Africa	Arab States	Asia-Pacific	Europe, North America	Latin America, Caribbean	Total
Adult education included in a sustainable development strategy	13	0	10	17	6	46

Source: National Reports for GRALE II[10].

This reporting suggests that Member States are beginning to recognize the importance of adult education as necessary to address sustainable development goals, and are now incorporating adult education into their sustainability strategies and plans. The GRALE national reports provide evidence that adult education policies are shaping educational and teaching/learning practice more broadly and are also beginning to be linked to sustainable development objectives.

Another international process that has contributed to progress on educating adults for sustainable development has been the UN Literacy Decade (2003 – 2012) (UNLD). The UNLD's vision, Literacy for All, promoted literacy not only as an essential skill to address the challenges that children and adults alike will face during their lives, but also as a critically important competence for participation in global societies and economies (Resolution 56/116). At the end of the UNLD, UNESCO (UNESCO 192/EX7) reported that the global adult literacy rate rose from 82% in 2000 to 84% in 2011. However, even in developed countries, 160 million adults are functionally illiterate, and 743 million adults, mainly in South and West Asia, and sub-Saharan Africa will still be illiterate in 2015. Furthermore, since 2011 two-thirds of the illiterate adult population continue to be women, a number that has remained unchanged for over 30 years. Being unable to engage in written communication (and numeracy) represents a crucial obstacle to sustainable development (UNESCO-UIL, 2013).

The outcomes of the UNLD provide a backdrop to the challenges facing the advancement of non-formal adult learning in ESD: not only the acknowledgement of an 'unfinished agenda', but also the affirmation that 'literacy can transform our world into a more inclusive, just, peaceful and sustainable planet' (UNESCO, 2013m, p. 4). As Uganda reported at the end of the UNLD, the Literacy Decade 'helped establish linkages between literacy and gender, health, empowerment and sustainable development' (UNESCO-UIL, 2012). One example of this described below is the Community Learning Centres project in Nepal called the Integrated Environment Literacy Program (IELP) for Poverty Alleviation through Income Generation Program and Quality of Life Improvement of Girls and Women and Disadvantaged Populations.

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9   UNESCO Institute for Lifelong Learning, 2013, Table taken from the National Reports for GRALE II (see http://uil.unesco.org/home/programme-areas/adult-learning-and-education/confintea-portal/news-target/national-progress-reports-for-grale-2012/af44e96bc9ca05553529f73098b1348b/)

10   See http://uil.unesco.org/home/programme-areas/adult-learning-and-education/confintea-portal/news-target/national-progress-reports-for-grale-2012/af44e96bc9ca05553529f73098b1348b/

Box 4.5.1.4: Nepal – ESD literacy initiative

Over 1,852 literacy learners and about 4,000 family members in Nepal benefited from an ESD literacy initiative. The National Resource Center for Non-Formal Education (NRC-NFE) and the Center for Education For All (CEFA) developed the Integrated Environment Literacy Program (IELP) for Poverty Alleviation (2006 – 2008) which worked towards educating and empowering children and adults, to conserve and improve the environment through learning about key sustainability issues such as waste and community forest management, as well as environment-friendly agriculture. The project involved the integration of ESD content through group work among community members; the development of integrated curriculum and learning materials for literacy programmes; and the dissemination of ESD information. As a result, learners were more attentive to keeping their communities clean, and additional income was generated from making materials out of waste. This initiative contributed to raising literacy and changing the perception of the community towards more sustainable development.

Source: ACCU (2012).

Participation, inclusion and equity of learners in non-formal adult education are a major challenge

While countries and stakeholders now recognize the importance of ALE in sustainable development, the provision of ALE remains a challenge, because ALE in general does not reach the majority of people, especially those most in need. In addition, the lack of access or engagement needs to be addressed to introduce concepts and practices of sustainability to adult learners. This weakness is reinforced by the so-called 'Matthews Effect': Those who are already well educated are more likely to participate in adult and continuing education than those who are most in need of further skills and competences, (e.g. simply to improve their living conditions) (UNESCO-UIL, 2010b, p. 70). Furthermore, as of 2013, only half of the reporting countries in GRALE were actively working to improve gender equality in adult education. Groups with multiple disadvantages must also be considered to break the cycle of exclusion, (e.g. for migrant women or illiterate persons with disabilities) (UNESCO-UIL, 2010b, p. 117).

The establishment of community-learning spaces seems to be a promising means to enhance access to ESD learning activities for adults. Community learning centres have been rapidly expanding in Asia and the Pacific[11], as well as in the Arab states and Latin America through South-South cooperation. They can be vehicles for extending ESD-learning opportunities that are responsive to learners' needs and circumstances.

Standards and capacity development are needed for non-formal practitioners to ensure quality delivery in ESD

A quality delivery of ESD for adults requires appropriate capacity development of – and by – responsible educators and institutions. Training of adult educators is of special concern. During the DESD, two general approaches have emerged:

1. **Strengthening the capacity of organizations who work with adult learners:** The Grundtvig Learning Partnership CRISTAL – Common References in Sustainable Training in Adult Learning (2011 – 2013) – provides concepts and instructive practice of ESD. CRISTAL consists of eight European organizations that deal with adult learners from disadvantaged areas and positions in society. The eight institutions are working together to combine the three core elements of environmental, economic and socio-cultural development into capacity-building for all adult education institutions (see CRISTAL, 2011).

2. **Strengthening the capacity of individuals who work with adult learners:** The Certificate in Adult Education for Sustainability organized by the Ontario Institute for the Studies in Education (OISE) at the University of Toronto in Canada focuses on the linkages between the education of adults and the issues of environmental, social and economic sustainability. The programme builds on the assumption that expertise in sustainability is acquired by respective learning, (i.e. adult education for sustainability involves learning the way out of unsustainable modes of thinking, feeling and acting in the world, and learning the way to more sustainable ways of life) (University of Toronto, 2014).

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11   For an instructive collection of cases from China, India, Indonesia, Japan, Republic of Korea, Nepal and the Philippines with a focus on community involvement, including sensitization for and action on environmental problems, see the Asia Good ESD Practice Project (AGEPP) at http://www.agepp.net/cases.html

Clearly, capacity development remains a challenge and there is a need to equip the non-formal facilitators with knowledge and an understanding of ESD so that they can empower learners with the knowledge and skills essential for a sustainable future.

Public awareness and media

Figure 4.5.1.3: Average rating of public awareness in 2005 and 2013 for Member States
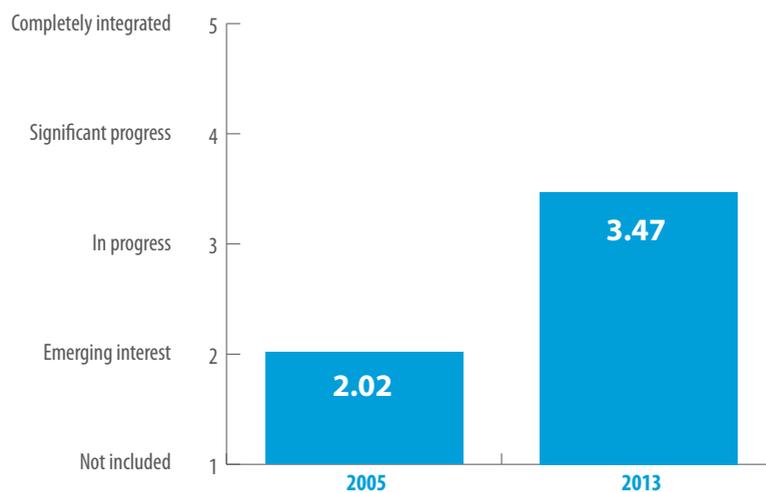
Source: UNESCO GME Questionnaire MS.

During the DESD, public awareness of environment and sustainable development issues is reported to have improved in many countries, although evidence that links awareness to changes in choices remains limited. Based on the UNESCO Questionnaire for the Final Report, Member States seem to suggest that advances in public awareness are among the most significant of all levels and types of education (from 2.02 in 2005 to 3.47 in 2013). Over half (55%) of the Member State respondents reported that the raising of public awareness of sustainable development was barely on their radar screen at the start of the DESD (either not included in their work or was only an emerging interest). However, by 2013, only 10% were still to start any actions, while nearly three-quarters (72%) suggest that good progress is being made, with a number of those reporting full implementation of public awareness-raising efforts. Other stakeholder respondents report the advancement of ESD in this area from 2.25 in 2005 to 3.62 in 2013.

Figure 4.5.1.4: Status of ESD in public awareness in 2005 and 2013 for Member States
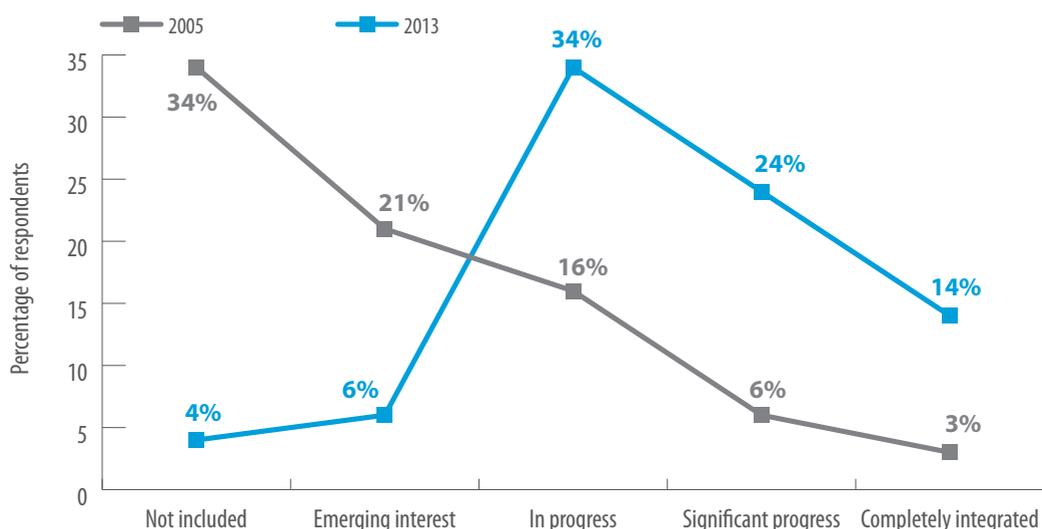
Source: UNESCO GME Questionnaire MS.

While the progress reported by Member States is encouraging, it may actually underestimate what has taken place through other ministries and organizations during the DESD. It is important to note that the responses provided to UNESCO's Questionnaire by Member States largely reflect the views of ministries of education. As the UNESCO country reports show, public awareness initiatives are undertaken by many departments and levels of government. Public awareness activities are also central to community-based organizations, NGOs, local authorities and other agencies, which suggests that progress is indeed greater than the more conservative estimates of Member States. As Latvia reports, 'public awareness on ESD has been built mainly on activities of NGOs (Homo Ecos, Next Youth, Latvian Youth Council) in social media, and some publications in online and printed media, initiated by the Ministry of Environment and Sustainability' (GME Q Latvia, MS).

Concentrated efforts to raise awareness about the importance of environmental protection and sustainability may be traced to as early as 1948, with the founding of the International Union of Concerned Scientists, now IUCN, The International Union for Conservation of Nature. More recently, Rachel Carson's seminal book, *Silent Spring* (published in 1962), was considered by some as the catalyst for the rise in large-scale public environmental awareness campaigns (IISD, 2012). Countless numbers of initiatives have been launched since then, including global campaigns such as the Earth Charter and global events, such as Earth Day, Oceans Day and the Earth Hour. International NGOs and civil society organizations such as IUCN, World Wildlife Fund (WWF), Third World Network, ENDA Tiers Monde, Civicus and others have full programmes designed specifically to expand public knowledge of the sustainability of our world.

At the country level, national strategies for sustainable development, national mitigation and adaptation plans and other policy and planning initiatives often include a component on public communications to encourage citizens to understand how their countries need to respond to the challenges ahead. However, **investment and action on public awareness raising is not only a matter for governments, it is also a business issue for the private sector**. Public understanding and demand for sustainability-related goods and services must be fostered to help social and environmental enterprises grow their businesses (The SEED Initiative, 2012). Consumers must be guided in choosing green energy options, housing options, household goods and environmentally and socially responsible services in order to advance greener economies globally. **The role of the individual in relation to values and lifestyle choices is central to the creation of a global sustainable and equitable society**.

Governments have used public awareness raising to leverage adoption of national sustainable development strategies and DESD implementation plans

Government-initiated campaigns have raised the profile of sustainable development, encouraging citizens to change choices and actions in keeping with national commitments to sustainable development. Montenegro reports having adopted a Communication Strategy for the Sustainable Development of Montenegro for 2011–2013 (GME Q Montenegro, MS). The Scottish Government has invested in promoting a broad vision for the sustainability of Scotland, requiring active outreach and awareness raising among the population. The 2008 GoGreener' campaign[12] was a two-year initiative designed to contribute to widespread culture change and to normalize behaviours supportive of sustainability. New Zealand implemented a similar series of awareness campaigns, including the 2007 Household Sustainability Campaign, which focused on practical ways for the population to improve energy efficiency, choose alternate forms of transportation and reduce waste and water usage in their households (New Zealand's Ministry for the Environment, 2009).

With the similar aim of supporting sustainable development planning through public awareness campaigns, Morocco launched and implemented a National Strategy for Environmental Protection and Sustainable Development, followed by a National Action Plan for the Environment in 2002, and then a National Charter of Environment and Sustainable Development in 2010. Through campaigns in the media and community-level activities over the past five to 10 years, the country's citizens are being informed and engaged in the national commitment to sustainable development. The media are also contributing to raise awareness on sustainable development through regular newspaper features, as well as TV and radio programmes (Legrouri and Sendide, 2013).

Likewise, national DESD strategies and plans have included communications activities to inform and engage the general public. In Japan, the Japanese action framework for the DESD was implemented in 2005 through participation and partnership at different levels and among diverse actors involving 11 ministries and agencies (Japan Ministry of the Environment, 2009). The Ministry of Environment launched model projects of local ESD programmes, named +ESD Projects, in 14 regions between 2006 and 2008. ESD Learning Forums were organized by the ministry for experience sharing, mutual learning and networking among those engaged in the projects.

In Sri Lanka, responsibilities for DESD actions were distributed throughout the government: public awareness and media components were assigned to the Ministry of Culture to disseminate knowledge to the public on culture, and cultural values and to develop skills for sustainable livelihoods. The Ministry of Mass Media and Information provided awareness programmes to media personnel in order to incorporate sustainable development into day-to-day print and electronic media reporting.

Government leadership and resources are often essential to roll out nationwide campaigns and challenges to their citizens, creating a sense of a shared vision and commitment to sustainability.

In raising public awareness, it has been well understood that constructing the local connection is extremely helpful in three ways: first, in making the issue relevant to the individual (how does this challenge affect me personally?); second, in giving the individual an opportunity to do something to contribute to addressing the issue (what can I do about this?); and particularly significant is the third way, the collaborative aspect of these actions, which is working together in the local community.

Box 4.5.1.5: Japan – Raising local awareness in Okayama

An ESD programme in Okayama, Japan, was set up in 2005 to promote the implementation of ESD across the city through a multi-stakeholder process. Activities range from exposing the local public to the concepts and principles of sustainable development to encouraging implementation of sustainability in on-going activities. The promotion activities utilize all types of media including TV, radio, poster, flyer and promotional goods. During ESD Week, various events are held by the city with cooperation from many local organizations such as Kominkans, citizens' groups and schools. ESD Week aims to rally people's interest in sustainable development and learn from each other through active participation in the events.

Source: GME Q City of Okayama (Okayama City Local Government), KS.

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12   See http://www.infoscotland.com/gogreener

During the DESD, the importance of the local context in public awareness initiatives has emerged in multiple cases. Experts and policy-makers attending the 2012 conference, The power of ESD: Exploring evidence and promise, held in Visby, Sweden, identified ESD in local communities as one of the five major thrusts of successful ESD at the national level (SWEDESD, 2012). Australia also has experience in this area. As a country aware of the importance of local community awareness in the implementation of environment preservation and sustainability plans, government departments and stakeholders deployed a range of approaches, including information sharing and awareness raising, material incentives in participation, community consultation, community capacity-building and community action (Tilbury et al., 2005).

Public awareness raising during the DESD has been characterized by highly creative approaches

Stakeholder reporting and related research for the final GME report reveal an incredible richness and diversity of efforts. These have included involving performance artists, television productions, large-scale information campaigns, interactive multimedia and internet creations, as well as individual, city-specific 'learning spaces' for citizens. Specific approaches include:

Mobile public exhibitions: In India, the Science Express Biodiversity Special (SEBS), an educational exhibition located on a travelling train, was set up in 2012 and dedicated to providing knowledge about biodiversity across bio-geographical zones of India. A variety of complementary activities are conducted on the train as an integral part of the exhibition, with 40 communicators sharing information with visitors. Over two years, 4.6 million visitors have seen the biodiversity exhibition, which includes visits by over 10,000 schools. The exhibition has also been described as the 'classroom-on-wheels', as it allows for activities performed both in the train and on the railway platform, including teacher orientation. A survey done on the train revealed that over 80% of visitors showed an increase in understanding about biodiversity during and after the visit (Sarabhai and Subramanian, 2014).

Interactive websites: The United Arab Emirates has supported the development of Shaheen's World, a publicly accessible online learning website that aims to enhance children's knowledge, skills and attitudes towards the environment and global issues through friendly online activities and games. Shaheen's website is considered by The Environment Agency, Abu Dhabi, as one of its projects that contributes not only to awareness raising among Emirati children but also community members such as consumers, business people and women.

Television productions: Television for Education-Asia Pacific joined efforts with the Asia/Pacific Cultural Centre for UNESCO (ACCU) to launch the Saving the Planet project, an initiative to produce a regional TV series and train staff of national and local organizations engaged in ESD work in developing countries of Asia. The project allowed for groups in six countries (Cambodia, India, Lao People's Democratic Republic, Nepal, the Philippines and Thailand) to share experiences highlighting innovative efforts in ESD. Their stories have helped to raise awareness amongst others who pursue grassroots action for a cleaner and safer planet. In Guyana, as part of the Mangrove Management Programme, the Ministry of Environment partnered with Guyana's television Learning Channel to air on a regular basis the teaching materials and DVD, *Holding Back the Sea*, demonstrating the importance of mangroves for coastal protection. In addition, a 'mangrove song' and a campaign explaining the multiple benefits of mangroves have been shown on national television (Legrouri and Sendide, 2014).

Performing arts contributions: The Ministry of Environment in Barbados has sought to utilize a variety of media for creating messages about SD as part of raising awareness among its citizens. One of the more popular media used is performing art, where local award-winning writers and spoken word artists come together on an annual basis and perform their environmentally inspired works around a chosen theme, free of cost to the public. The events are staged by the Ministry of Environment, in collaboration with the artists, at a number of outdoor locations across the island. These activities, among others, will be presented as examples of some of the best practices during the celebration of the International Year for Small Island Development States (SIDS), 2014 (GME Q Barbados, MS). Similarly, Jamaica is using popular artists to reach large segments of the population that otherwise would not relate or respond to traditional media. The communications strategy, Voices for Climate Change, aims to educate Jamaicans on climate change issues, especially adaptation strategies that will reduce the economic and social impacts of climate change on the country.

However, the results of UNESCO's Questionnaire suggests that there are still significant concerns on whether public awareness has received sufficient attention to date, and that more needs to be done in the years following the DESD. In particular, developing countries need to include capacity-building and public awareness as major priorities in their post-DESD planning. Stakeholder results from the Questionnaire suggest that public awareness is second only to teacher education in respect to what needs to be addressed in the post-DESD Global Action Programme (UNESCO, 2013j).

Influence of social media on individual understanding and actions is on the rise

The numbers of users of the top four social media channels are significant: Facebook: 1 billion; Twitter: 560 million; Google+: 400 million; and LinkedIn: 240 million[13]. This rise in social media and online social networks occurred while the DESD itself was underway, with many organizations enthused by and experimenting with the potential of these new communication channels for raising public awareness for sustainability. However, in this virtual world, ideas and actions are being influenced more through massive networks of friends and colleagues than by 'top down' messages from governments and organizations, (i.e. a horizontal, rather than a vertical flow of information, and a more informal, less 'institutionally endorsed' discourse) (Willard, 2009).

The transfer of information is expanding from the use of search engines to sending queries through networks of friends on social media sites and to central destination sites. People use their Facebook and Twitter networks to find information that their friends and colleagues are recommending, debate the issues raised and are thus influenced to act. Kolleck et al. (2011) states that the integration of sustainable development into personal social networks gives new meaning to existing norms and ideas by increasing the legitimacy of the debate. More understanding is needed on how this process works in an online environment, and of how to use online social networks more effectively to advance changes towards sustainable development.

Proactive engagement of the media is highly effective

During the DESD, significant efforts were invested at global, national and local levels to strengthen media coverage of education, environment and sustainable development issues. Recently, the international edition of the *New York Times* provided coverage of sustainability issues in the classroom, reporting that many nations are making global warming part of the curriculum. The raised profile of ESD in mainstream media serves to inform policy-makers who seek to gauge the importance of issues of concern to the general public.

As a priority task during the DESD, UNESCO Headquarters contributed to building the media capacity to report on sustainable development issues such as climate change, HIV and AIDS, and the MDGs. As an example, in 2013, UNESCO invited 13 journalists from prominent media outlets in 14 countries to UNESCO Headquarters to further their understanding and deepen their reporting on ESD. As a result of the media workshop, many articles and several TV programmes related to ESD were produced in different languages around the world. The participants are now committed to convincing their editorial authorities of the importance of coverage of sustainable development and taking the lead on advocating the issues.

Expanding engagement with the media was used throughout all the regions during the DESD as a means to advance public awareness of sustainable development. In Africa, partnerships were advanced with the African Association of Community Radio Broadcasters, the Federation of African Journalists and the International Federation of Journalists. The UNESCO training kit, *Media as Partners in Education for Sustainable Development*, developed and tested in 2007, has been instrumental in creating awareness on sustainable development through the media in Africa (Bird et al., 2008).

In the Asia Pacific region, Indonesian media have been directly involved in DESD implementation. Starting in 2005, a series of workshops were held for media practitioners on 'Covering Sustainable Development' (UNESCO, 2011c). The workshops provided the opportunity for local media to understand ESD concepts and utilize them in their daily work. Since then, over 200 Indonesian media professionals have benefited from capacity-building activities on ESD (Legrouri and Sendide, 2014).

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13   Information found at www.leveragenewagemedia.com

Tonga has also made good use of training media to report with greater clarity and urgency on environment and sustainability matters. The Ministry of Education, Women's Affairs and Culture (MoEWAC) has worked with local media to educate them on agendas such as EFA, the MDGs and the DESD, and one representative has indicated that the media has become a 'catalyst and advocate for local co-operation and contributions to sustainable development, especially at the grassroots and community level' (Hiebert, 2013).

At the end of the DESD, it appears that media coverage of environment – and sustainable development in general – has improved in many countries but needs more attention. In the US alone, a 2012 national opinion poll has found that 79% of Americans want improved news coverage of the environment.[14] In response to this, the Project for Improved Environmental Coverage (PIEC)[15] was launched in the US.

Further research is needed to understand changes in social norms and individual choices

While the evidence of public awareness raising commitments and initiatives is extensive, evidence that links awareness to changes in choices remains limited. UNEP's Global Survey on Sustainable Lifestyles (GSSL) collected data from 8,000 young urban adults aged 18 to 35 from 20 countries around the globe about their vision and hopes for sustainable living. The GSSL found that well-being, agency and meaning are the cornerstones of a young adults' ideal future. It also found that there is a need for a holistic, compelling and pragmatic vision of what a sustainable society consists of, and how it can be translated into ways that influence individuals. The GSSL affirmed that more research 'is essential to identify and assess the best approaches to help foster behavioural change' (Abbas et al., 2013).

It has long been considered that raising awareness by itself is not sufficient to cause change in choices. As UNICEF, and indeed several others, have noted: 'Many communication initiatives have succeeded in enhancing public awareness, but have failed in going beyond awareness, to stimulate positive changes in attitudes and practices toward creating lasting social change' (UNICEF, 2005). A 2011 OECD report on greening household behaviours suggests that there is a connection between real-time and relevant information provision and consumer action. Researchers observed that most households have little or no knowledge of their power and water consumption, but that 'campaigns to provide improved information to consumers, by installing smart meters that display accurate real-time information … are likely to affect households' behaviour' (OECD, 2011, p. 143). On the whole, the OECD report suggests there have been modest improvements in environmental choices at the household level in many countries. However, the OECD report also observed that compelling drivers for behavioural change are more often economic and that norms, more than information, have significant influence on choices. The OECD suggests that 'further work on the origin of norms and how they interact with decisions could be usefully carried out' (OECD, 2011, p. 143).

Implications for future actions

Non-formal education can be a powerful driver of change towards sustainable development. The examples, provided above, show the diverse range of non-formal education activities that have taken place during the DESD, are rich in both localized learning and content. The responses reflected and confirmed the findings in the 2012 M&E Report, (i.e. 'the boundaries between non-formal, informal and formal learning become increasingly vague') (UNESCO, 2012d, p. 67).

Data on public awareness that includes information on policy drivers, roles of various actors in implementation, success factors and challenges in implementation and on the measurement of results are very limited in the research on ESD. Despite this shortcoming, it is well acknowledged that countless initiatives have been undertaken by many ESD stakeholders during 2005–2014 to raise public awareness on sustainable development. UNESCO Member States and other stakeholders have indicated the importance of it as a key factor in moving towards sustainable development. However, the questions remain: how to move from commitment to strategy and from strategy to action. **Scaling up the countless numbers of local, national and regional public awareness and non-formal efforts into a larger,**

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14   See (http://environmentalcoverage.org/polling/)

15   environmentalcoverage.org

coordinated movement for change towards sustainable development will be the challenge in the years to follow the DESD.

Box 4.5.2.1: Suggested actions

➤ **Initiatives to increase public awareness raising should be scaled up in the post-DESD period, in recognition that action towards sustainable development depends on public awareness**, understanding and support. Monitoring and assessing the outcomes of such initiatives is essential to improve our understanding and ability to influence changes in social norms and individual choices.

➤ **The involvement of the media needs to be strengthened in communicating ESD and SD to the general public**, including capacity-building of media practitioners to understand SD issues, the use of specialists to strengthen the quality and range of reporting, and the monitoring of news media outlets to improve accuracy and accountability for coverage of sustainable development.

➤ **More attention is required on the different roles and responsibilities at all levels of the government and of civil society in public awareness programming**. While government campaigns have contributed much to the raising of awareness, considerable work is also done at the grassroots by civil society organizations that would benefit from a partnership with the public sector, which could provide them with more appropriate infrastructure and resources.

➤ **The capacity gap for organizations and individuals** who work directly in non-formal education and particularly with adult learners of sustainable development must be addressed through the delivery of appropriate training and materials.

➤ **Lessons from Member States who have used music, art and other means** to communicate sustainable development should be gathered and used to inform the growing diversity of approaches to raising public awareness of sustainable development.

Capacity-building and Training

''Know-how'' for sustainable development

Highlights

Large businesses and multinational corporation leaders and managers have an increasing awareness of sustainability, through entry-level formal education at business schools, executive education programmes, workplace training and peer learning in non-formal settings.

Networking and multi-stakeholder learning have been particularly effective in moving the private sector towards sustainability.

Education related to sustainable development has substantially increased in the curriculums of business schools.

Business and industry are now looking beyond learning about the business case for sustainable development towards more technical education and training for implementation of sustainability-related practices.

Challenges

While 65% of signatories to the UN Global Compact have committed to sustainability at the CEO level, only 35% are training managers to integrate sustainability into business operations.

Technical know-how will not be sufficient to advance the private sector. There needs to be a shift in private sector education and training from teaching general awareness, frameworks and models to developing skills and competencies for critical whole-systems analysis, decision-making and collaborative problem-solving.

There is a need for planned, strategic efforts to undertake training and capacity-building in particular for small, micro and medium sized enterprises.

Capacity-building and Training: ESD Actions around the World

The **UN Global Compact** has grown to more than 10,000 **participants**, including over 7,000 businesses in 145 countries around the world. 550 Business schools have joined **Principles for Responsible Management Education (PRME).**

Close to 200 **companies** are members of the **World Business Council for Sustainable Development (WBCSD)** and participate in its peer learning events. WBCSD raises awareness throughout its regional network, comprising of 66 regional partners (business/industry associations) in 64 countries representing over 35,000 national businesses.

CSR Asia has attracted over 70 **strategic partners**, in addition to running training courses and building capacity in businesses throughout the region.

The **Latin American Network, Forum Empresa**, brings together 22 corporate social responsibility (CSR) organizations from 20 countries with 3,339 **member firms** to share knowledge and advance sustainability across the region through workshops, webinars and conferences.

The **Coalition for Environmentally Responsible Economies (CERES)**, made up of 130 non-profit organizations, socially responsible investors and major pension funds, work with over 80 corporations to improve environmental and social performance. CERES' investor network on climate risk now works with 100 leading investors, collectively managing more than $11 **trillion** in assets.

79 of the world's leading financial institutions have adopted the **International Finance Corporation's Equator Principles** to manage environmental and social risk in developing country project financing. A key component of the implementation is training of staff.

4.6. Capacity-building and training

> Sustainable principles in business were once the preserve of the minority. Over the past decade, these principles have begun moving into the mainstream of business [. . .] Today, it is businesses that have no ambitions in sustainability that form the minority.
>
> — Managing for Sustainability, Economist Intelligence Unit (2010)

> The question I now hear most often from managers ... is not 'Why should we be sustainable?' but 'So what do we do?'
>
> — Gregory Unruh, Professor of Global Business, Thunderbird School of Global Management

In the final UNESCO DESD Questionnaire, Member States and other stakeholders reported on a wide range of activities for non-formal education, training and capacity-building, but only a few made more specific references to work with businesses. And yet, the potential for global transformation resulting from an increase in sustainability knowledge and skills in this sphere is considerable. Recognition of the need for training is coming from organizations such as The Global Compact, World Economic Forum, the International Monetary Fund and others, which have included the reorientation of present business practices and training future leaders of business to include awareness of 'green growth' in their agendas. Therefore, this third and final DESD report takes a closer look at the process of training and capacity-building in the private sector world of work.

Included in this chapter is a focus on private sector education and training at institutions of higher education. Indeed, many HEIs participate in international business and sustainable development initiatives and networks. Yet many currently face the challenge of incorporating sustainable development into their short-course training programmes and their entry level preparation through Bachelors of Commerce and Masters of Business Administration. Therefore, sustainable development in entry-level business training is included here rather than in the section on higher education.

Corporate sustainability has been defined as a company's delivery of long-term value in financial, social, environmental and ethical terms (UNGC, 2013a, p. 4). Education and training are central to moving the private sector towards this understanding of sustainable development. Building capacities in micro, small, medium, large and multinational businesses is necessary to transform strategy and operations, leading to outcomes that will be profitable, support people and benefit the planet. ESD across the private sector takes place in a multitude of formats and contexts. Entry-level business students and entrepreneurs learn about sustainability through programmes in higher education institutions. Executive seminars and short courses target business leadership and middle management. Many more owners, managers and workers learn 'on the job' through workshops and seminars at conferences, through internal workplace training, through searching for specific tools and resources online and through networking. Companies learn not only about how to transform their own operations, but also about how to advance changes in the operations of clients and firms along their supply chains.

Efforts to reorient the private sector towards sustainable development through education and training have been underway since the 1992 publication of the seminal work, *Changing Course: A Global Business Perspective on Development and the Environment*, by the Business Council for Sustainable Development (Schmidheiny, 1992). Countries agreed, in chapter 30 of Agenda 21, to promote the education and training necessary to strengthen the role of business and industry (UN, 1992). Since then, organizations such as the UN Global Compact, the World Business Council for Sustainable Development (WBCSD), the African Institute for Corporate Citizenship, Corporate Social Responsibility-Asia (CSR-Asia), the Latin American Forum Empresa, and many others have launched education,

training and awareness-raising initiatives that support a private sector transition towards more sustainable pathways. While these efforts have taken place largely independent of the DESD, there have been important opportunities during the DESD to bring together those working to advance ESD in the private sector and those working on ESD in formal education. The DESD has helped to bring these many efforts into the broad context and framework of ESD, and provided an opportunity to review progress.

Overview of progress

Within the UNESCO ESD Questionnaire, the category of 'training and capacity-building' encompassed actions targeting business and industry, but also included efforts undertaken to work with public-sector institutions, teachers and civil society. Many respondents reflected on a full range of training efforts, including those targeted towards the private sector (from 1.67 in 2005 to 3.22 in 2013 for Member States and from 2.06 to 3.46 for key stakeholders).

Figure 4.6.1.1: Average rating for capacity-building and training in 2005 and 2013 for Member States
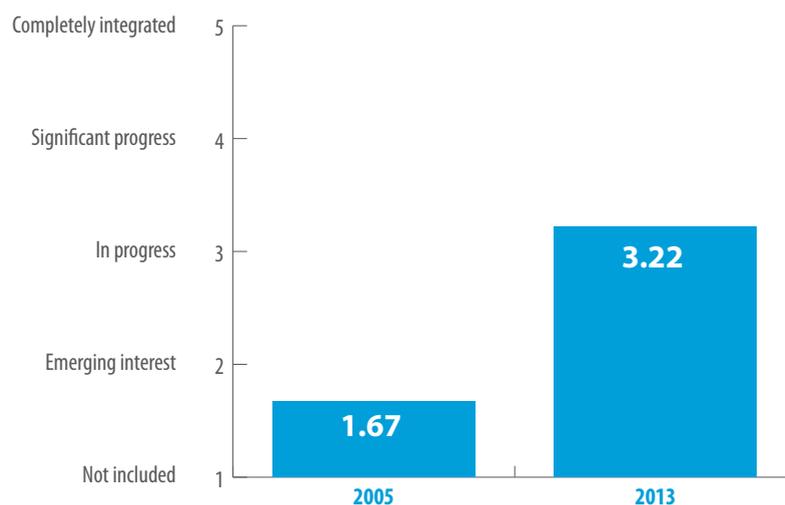
Source: UNESCO GME Questionnaire MS.

> In the sector of businesses, educational activities related to sustainable development and social responsibilities are being actively implemented. These can be considered to be more significant changes, compared with those witnessed in 2005, the DESD initiation year, when there were almost no discussions on sustainability or sustainable development. The ratings of 1 [not included] and 4 [significant progress] can be applied to 2005 and the present time, respectively.
>
> — (GME Q Republic of Korea, MS)

Similar to the Republic of Korea's experience described above, well over half (59%) of the 70 Member State respondents reported that, in 2005, training and capacity-building was either not included or was only an emerging interest. Yet, in 2013, that percentage dropped to only 10% of Member States not yet addressing capacity-building for sustainable development. Nearly two-thirds (63%) of respondent Member States reported that training and capacity-building policy and planning now range from 'in progress' to full implementation.

Figure 4.6.1.2: Status of ESD in capacity-building and training in 2005 and 2013 for Member States
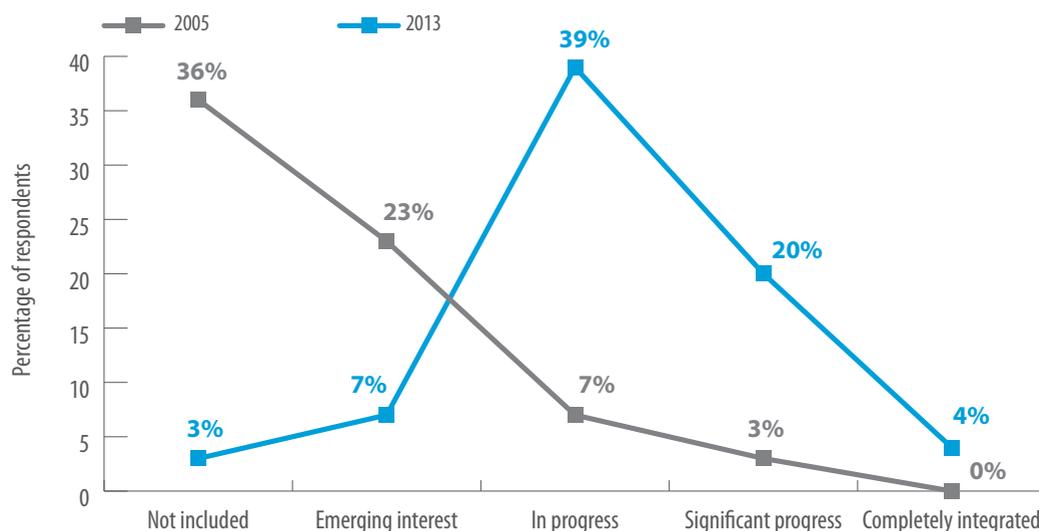
Source: UNESCO GME Questionnaire MS.

While these general findings of progress on training and capacity-building are encouraging, the limited availability of more specific sources of sustainability-related private sector education and training data is a real challenge to the assessment of progress made during the DESD. As Finland reports, progress on training and capacity-building 'is difficult to estimate … [the training and capacity-building] sector has much more private sector actors compared to the formal education system and there is no adequate data available' (GME Q Finland, MS).

Further, the breadth and interconnectedness of the private sector through the globalization of markets, international supply chains and shared issues across industry sectors make national assessments of progress on private sector ESD particularly difficult.

The years of private sector awareness raising, training and education efforts that built on the publication, *Changing Course*, can be correlated to current changes in levels of awareness and engagement. In 2013, the UN Global Compact and Accenture reported the perceptions of more than 1,000 top executives from multinational companies across 25 industry sectors on sustainability and corporate practices; three-quarters of the respondents (76%) now believe that embedding sustainability into core business will drive revenue growth and new opportunities (UNGC-Accenture, 2013).

Further, the demand for training and capacity-building is increasing. Two-thirds (67%) of the business leaders surveyed also believe that businesses are still not doing enough – and that more is needed to help businesses contribute to sustainable development (UNGC-Accenture, 2013, p. 11). These top executives have called for enhanced education and learning in order to help their sector move towards sustainability: 'business leaders point to the need to learn from those companies already leading the way' (UNGC-Accenture, 2013, p. 12). In its 2013 Corporate Sustainability Report, the UN Global Compact further asserts that while 65% of its signatories are committing to sustainability at the CEO level, '**only 35% are training managers to integrate sustainability into strategy and operations'** (UNGC, 2013a, p. 7).

Efforts have been made during the DESD at the global level to engage the private sector. Workshop and case study information collected by UNESCO provides part of the picture of a private sector willing to strengthen its understanding of sustainable development and eager to share lessons learned with its peers and other stakeholders (UNESCO-UNEVOC, 2007). UNESCO's regional meetings launching the DESD included participation of companies with a history of engagement in education and training for sustainable development. In the course of the DESD, several ESD-related consultations, workshops and conferences have involved the private sector. In particular, in 2007, UNESCO-UNEVOC organized a conference in Bonn, Germany, on 'Engaging the Corporate Sector', with the participation of the WBCSD

and corporations such as Cisco Systems, Newmont Mining and Shell. The documentation from these events suggests a sector that is motivated to act, but is seeking more specific guidance to improve business performance (UNESCO-UNEVOC, 2007). The following review of progress over the past 10 years by type of training provides some insight into the guidance needed in the years to come.

Private sector executive education programmes

At the training level for executives and managers, private sector executive education programmes are playing an important role in fostering leadership in sustainable development, building capacity among managers and providing technical education on emerging issues. Experts interviewed for this chapter suggest that, on the basis of the last 10 years of work on private sector education, short experiential training events, which focus on systems thinking and practical decision-making, and which challenge participants from different sectors to co-create solutions to real problems, are most effective. Managers and executives are asking for greater focus on scaling up business action as it relates to their own companies or industries and greater experiential learning and peer-to-peer learning about best practices.

Business schools are the dominant providers of executive education. Programmes are offered by leading institutions around the world, including in developing countries and emerging economies. Such programmes are now offered by institutions such as the University of South Africa, the Asian Institute of Technology, the China Europe International Business School, INCAE business school in Costa Rica and many others. They provide an important bridge between global challenges and perspectives and regional business needs and actions.

For example, the China Europe International Business School (CEIBS) in Shanghai offers an executive level Programme on High-Performance and Sustainable Leadership. Over four intensive days, executives explore the latest ideas in sustainability for companies in Asia. The INCAE Business School in San Jose, Costa Rica, offers the annual *Programa de Gerencia de la Sostenibilidad* (Sustainability Management Program), providing participants with knowledge and tools to incorporate environmental and social elements within the operations of their companies. In 2012, INCAE hosted 'Think Forward: the Latin America Forum on Strategies, Solutions. Sustainability'. This forum brought together global experts and business leaders to discuss capacity and solutions for global challenges that will affect regional prosperity.

Research and interviews indicate that a number of business associations and NGOs also offer courses in leadership, business and sustainability, occasionally in partnership with higher education institutions. Programmes by business associations like WBCSD are experiencing a tangible increase in demand because of their highly targeted content and membership base. For example, the WBCSD's Future Leaders Team (FLT) programme aims to mentor leaders for the future and has become more technically focused on specific management challenges. In 2014, the focus will be on 'Bridging the Capitals – Accounting for Natural & Social Capital in Business Decision Making'. Private sector training offered by NGOs (such as IUCN, WWF and others) also tends to be more technically focused on specific issues such as biodiversity valuation, integrated reporting, etc.

In developing regions, partners in the LEAD network (Leadership for Environment and Development) across Africa, South and Southeast Asia, China, Central and South America offer a wide range of workshops and short courses in leadership, entrepreneurship, clean energy technology, and other programmes customized to meet the needs of their region. CSR-Asia works with the Asian Institute of Technology to offer four-day intensive courses to companies across the region, on, **among other things**, environmental management and climate change, diversity and inclusion in human resource management, and social entrepreneurship and its role in poverty alleviation. The African Management Initiative offers short online courses to strengthen management capacity in general across the region.

Demand-driven training may be increasing in order to participate in and comply with new standards and certification schemes (e.g. ISO 14001 on environmental management systems, and ISO 26000 on social responsibility), transparency and accountability initiatives (e.g. the Global Reporting Initiative) and certification schemes (e.g. the Marine Stewardship Council certification for sustainable fisheries products) (Usher, 2006). All these efforts require targeted training that is increasingly focused on very specific, technical challenges. Such training can be provided in a number of ways: by the standards body (often through online guidance as well as in person) or by third-party consultants working with the company.

Business and industry are now looking for more technical education and training for the implementation of sustainability-related practices. As of 2014, it would appear that executive education programmes on sustainability are now moving away from general awareness building and are seeking to offer tangible, practice skills on specific topics. According to experts at the WBCSD, multinational companies want more technical education on specific areas of sustainability, such as low carbon design and production, full cost accounting and sustainability reporting. One key informant from the private sector asserts that 'we need more help with getting things done, more tools, more sharing of best practice.'

Technical 'know-how' will not be sufficient. Skills and capacities for whole-systems approaches, critical thinking, and collaborative problem-solving will also be needed for private sector transformation. Tilbury and Ryan (2011) argue that 'the urge towards technical fixes and problem solving is shaping the way that business is done today and constraining business practices for tomorrow. The repercussions for business education are serious and systemic as these responses neglect the need to critically question, innovate and rethink business futures'. **Based on research and interviews, there is a growing consensus in the private sector education community that there needs to be a shift from teaching frameworks and models to developing critical analysis and decision-making skills that will help managers to deal with complexity and rapid change** (FT Business Education, 2013).

Of all these, the capacity to use systems thinking is considered to be the most important. Business scholars have long understood that the solutions to complex sustainability problems require systemic analysis and multidisciplinary thinking (e.g. Starik and Rands, 1995). Executive education programmes are slowly beginning to respond. For instance, the recently launched (2013) Executive Master's for Sustainability Leadership (EMSL) at Arizona State University (ASU) draws upon ASU's multidisciplinary School for Sustainability to develop a systemic approach to executive learning. The Cambridge Programme for Sustainable Leadership (CPSL) introduces various natural science perspectives and executives get exposure to leading scientific organizations. Nevertheless, the integration of whole-systems perspectives and multidisciplinary approaches into business education on sustainability continues to be rare (cf. Whiteman, Walker and Perego, 2013).

Programmes offered by institutions of higher education

Over the last 10 years, education related to sustainable development has substantially increased in business school curricula (Bradshaw, 2013). According to *Bloomberg Businessweek* (2012), 'Many business schools are including sustainability programmes among their MBA offerings because business opportunities in the field have increased.' Particularly influential have been the Principles for Responsible Management Education (PRME), established by the UN Global Compact during the DESD (in 2007).[16] The UNGC has successfully used PRME to bring key players in entry level and executive education to agreement on six principles that provide a guiding framework to integrate corporate social responsibility (CSR) and sustainability into business education. Over 550 business schools and institutions have joined PRME, included top ranked schools[17] such as INSEAD in France, Haas School of Business at the University of California, Davis, and the London Business School. PRME signatories are committed to developing the capabilities of students to promote the value of sustainability for business and to work for an inclusive and sustainable global economy. PRME has generated a network of universities and colleges that promote CSR and report on the integration of sustainability into management education.

In addition, in 2012, PRME and the Globally Responsible Leadership Initiative (GRLI), together with a number of deans from leading management business schools, established the 50+20 initiative as a contribution to Rio+20. 50+20 is a collaborative global network initiative of committed peers that seeks to learn new ways and opportunities to transform management education in response to emerging societal issues.[18] The 50+20, GRLI and the GIZ's Academy for International Cooperation recently announced a seven-week open online course MOOC on Sustainability, Ethics and Responsibility in Business, Management and Leadership.

In 2013, the Association to Advance Collegiate Schools of Business (AACSB) and the European Foundation for Management Development (EFMD), which are the accreditation bodies of business school curriculum globally and in Europe respectively, have agreed to collaborate with PRME and GRLI to make sustainability and ethics a required part of business

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16   See http://www.unprme.org/index.php
17   As ranked by the Financial Times, http://rankings.ft.com/businessschoolrankings/global-mba-ranking-2013
18   See http://50plus20.org/5020-agenda

school accreditation. This will likely encourage business schools to include sustainability topics in their graduate and/or undergraduate curricula.

Research suggests that the increase in the number of MBA topics related to sustainability also appears to be facilitated by international ranking frameworks. Since 1998, MBA programmes have been ranked for their sustainability content, first by the 'Beyond Grey Pinstripes' from the Aspen Institute and more recently by *Bloomberg Businessweek*. Students and employers alike use these rankings in seeking the education and skills needed to advance their careers and their companies in support of sustainable development (Whiteman, Kellow and Rood, 2014).

While these changes in business programmes in higher education in the last few years of the DESD are encouraging (mostly driven by developed countries), research among business schools suggests that **there may be a gap between visions of sustainability and what appears to be happening on the ground**. Experts interviewed for this chapter reported that their client corporations are not always confident that business schools have the knowledge and skills to deliver sustainability training that meets their needs. Many of the challenges identified in the interviews were curriculum based: business schools need to provide clear learning or skill sets that can be applied inside companies, as opposed to general awareness building. The Academy for Business in Society (ABIS) and the European Foundation for Management Development (EFMD) in its 2012 CEO survey found that 76% of senior executives view dealing with sustainability challenges as an imperative for business strategy, but less than 8% think that business schools are providing the right kinds of skills development in this area (Tilbury and Ryan, 2011). For many business schools, the new challenge is to reconnect business school education, which is theoretically grounded, with practical challenges encountered by companies, particularly with respect to sustainability.

Workplace training initiatives

Another type of education and training for the private sector is customized, in-house training. Such initiatives contribute considerably to ESD in the workplace, including training of staff to implement sustainable business models in corporate environmental management, corporate social responsibility and support for local sustainable development initiatives. Companies often go further, and undertake training programmes for employees of firms along their supply chains to ensure those firms have the capacity to achieve corporate sustainability goals (UNESCO-UNEVOC, 2007). However, as with executive education and short courses, there is no global scan available, and no standards for this type of training. Box 4.6.1.1 is an example of a corporate training programme for employees:

Box 4.6.1.1: Viet Nam – Employees learning to be sustainable

Garment 10 Joint Stock Company (Garco10) in Viet Nam is considered to be a leader in sustainability training for its 7,500 employees in 13 factories. Recognizing the need for global standards, Garco10 has obtained ISO9001 certification for quality, ISO14001 for environment protection and SA8000 for social responsibility. Recognizing that training employees is an essential part of complying with these standards, Garco10 runs its own training academy for 500 new employees each year, with social and environmental responsibility as part of the core curriculum.

Source: Soliven (2010).

In Asia, Latin America and Africa, companies such as Reebok and Nike organize training workshops in their supply chains (factories in Asia, Latin America and Africa) on CSR issues such as compliance with labour standards on non-discrimination, acceptable working hours, fair wages and safe and healthy working environments (Whiteman, Kellow and Rood, 2014).

More policy-makers and the private sector are looking beyond tertiary education to work-based learning, co-op placements and apprenticeships as a possible way of strengthening the labour market and improving job prospects for the young. Work-based learning encompasses a diversity of formal, non-formal and informal arrangements, including apprenticeships, work detachment and informal learning on the job, and can bridge the formal education system with business interests. The key driver is the need for active policies to secure learning that meets the need of the workplace.

In particular, apprenticeship is no longer just limited to traditional trades. It is a viable workforce development tool in a wide variety of occupations, including in green sectors and in green occupations. While the concept behind apprenticeship may not have changed all that much, the types of industries successfully using apprenticeship to develop and build their

workforce, however, has changed drastically over the past 10 years. For example, the California Employment Development Department, in partnership with the private sector, provides low-income people with a wide variety of green job apprenticeship programmes. These programmes offer the specialized training workers need to qualify for green collar jobs.

As with executive education and short courses, there is considerable scope here for post-DESD work to identify, monitor, assess and strengthen workplace (and supply chain) education and training. A key entry point to this area of work may be through associations of human resource (HR) managers to determine needs, challenges and good practices. A number of experts interviewed for this chapter suggest that there is a need for new thinking about the kind of skills and knowledge that executives and managers will require to move their businesses towards greater sustainability. HR departments responsible for securing training and capacity-building for employees are not engaged in strategic decision-making around sustainability, skills gaps and training requirements. As a result, they often struggle with a lack of knowledge on how best to train managers in sustainability.

Private sector involvement in sector skills councils and observatory functions

During the DESD, several countries have enhanced the participation of private sector in analysis of the change in the economy and demand for investment in skills for sustainable development. For example, in France the government and social partners established a national observatory of occupations in the green economy[19] that monitors the changes in occupation, the investment by private sector and other stakeholders and provides recommendations regarding skills development programmes related to the green economy. Another example is the UK's Green Skills Alliance (GSA), a group of Sector Skills Councils (SSCs) that represents employers and workers on a national basis and are working together to provide advice and guidance across the wider green sector.

Networking and multi-stakeholder learning is particularly effective

Over the past 10 years and more, thousands of companies worldwide have signed up to various initiatives, principles and partnerships as part of their efforts to learn and do more for sustainable development. For example, The UN Global Compact has grown to more than 10,000 participants, including over 7,000 businesses in 145 countries around the world. Nearly 200 companies have joined the WBCSD while its regional network comprises 66 regional business and industry associations in 64 countries, representing over 35,000 national businesses. The Latin American network, Forum Empresa, brings together 22 corporate social responsibility organizations from 20 countries with 3,339 member firms (Feinberg, 2008). CSR-Asia has attracted over 70 strategic partners, in addition to running training courses and building capacity for sustainability in businesses across the region. Through these initiatives, business leaders and managers are networking with each other, sharing lessons and mutually reinforcing their commitment to progress.

Cross-sector learning is also strengthening business actions for sustainability. As the second UNESCO M&E report affirmed, 'learning in the context of sustainability requires cooperation and synergy between multiple actors in society and the blending of formal, non-formal and informal education' (UNESCO, 2012d, p. 55).

Box 4.6.1.2: Uruguay – Climate change training for decision-makers in South America

In Montevideo, Uruguay, the Avina/UNESCO Regional Centre for Climate Change Decision-Making programme coordinates business, the public sector and academia in joint learning. The Centre's training programme focuses on issues related to climate change, particularly those concerning decision-making and negotiations, and its economic and social impact. The objective of the initiative is to develop solutions for current and future global sustainability challenges based on science-policy interface. This joint effort will result in a regional network of academic, political, economic and civil actors who are able to support decision-making on scientific and managerial issues related to sustainable development (UNESCO, 2013q).

This kind of experiential learning fits with the learning preferences of executives in the private (and public) sector(s) who may not want to go to a training course (*The Economist*, 2010) but appreciate the opportunity to discuss and explore solutions with experts from different sectors. At this time, impacts are unknown as the Centre was established in 2013.

Source: UNESCO (2013q); *The Economist* (2010).

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19   See http://www.developpement-durable.gouv.fr/IMG/pdf/Observatoire_emplois_RA2013.pdf

Private sector training professionals have observed that success in building capacity lies in bringing together representatives of different sectors capable of influencing private sector choices towards sustainability. Businesses can learn from each other and share innovative services and products, but this is enhanced when government representatives join in the training to discuss the role of standards and regulations. In addition, academics can bring forward research into new processes and approaches, while civil society representatives can discuss consumer interests in company performance (Whiteman, Kellow and Rood, 2014). Work during the DESD has highlighted the importance of multi-stakeholder approaches in supporting the private sector's education and training needs.

The state of training and capacity-building for SMMEs needs considerable attention

While education, training and capacity-building initiatives for large and multinational corporations appear to be on the increase, it is less clear if SMMEs in the formal and informal economy have had the same level of awareness raising and capacity-building to adopt a sustainable development-oriented approach to their business practices. And yet, improving the performance and sustainability of local entrepreneurs and SMMEs, which represent the backbone of global economic activity, can help achieve sustainable, inclusive economic growth (WBCSD, 2012). The TVET chapter discusses in more depth the needs for technical and vocational skills in SMMEs, community-based businesses and the informal economy at local levels. As discussed in that chapter, there is a need for planned, strategic efforts to undertake training and capacity-building for SMMEs to adopt and strengthen sustainability-related practices.

The sustainability-related training and capacity development needs of the SMME sector have been recognized by the OECD, the International Finance Corporation, Supporting Entrepreneurs for Sustainable Development (UNEP, IUCN and UNDP) (SEED Initiative), the Ashoka Foundation and others, and can also often be found through government small business support programmes that offer guidance on sustainability-related matters (for example, SME Toolkit South Africa's coverage of environmental responsibility and social issues).[20]

While online information guides for SMMES are proliferating, (e.g. The World Bank Development Marketplace Toolkits, SEED's wiki "'The Entrepreneurs' Toolkit", the IFC's SME toolkit inter alia), the availability of facilitated learning programmes still appears to be limited. This demonstrates that there are two major ESD opportunities here: firstly, to strengthen mainstream SMMEs and support them to reorient their business strategy towards sustainability and take into consideration the environmental and social impacts of their operations; secondly, to help social and environmental enterprises improve their overall performance against triple bottom line indicators (social, environmental and business goals) (Creech et al., 2014).

Implications for the future

At the end of the DESD, the many efforts to raise awareness of the business case for sustainable development, the formal higher education initiatives through academic degrees and executive education programmes, as well as the non-formal short courses and workshops, have served to advance sustainable development across large businesses and multinational corporations, to the point where, as the MIT Sloan Management Review reports, we may begin to see a tipping point towards sustainability across the entire sector (Kiron et al., 2012).

There is, however, still much to do to advance sustainable development through private sector education, training and capacity-building. As the UN Global Compact advises, harnessing global business as a force for sustainable development represents one of the biggest opportunities in the post-2015 era, but this will require capacity-building for business implementation (UNGC, 2013b, p. 16).

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20   See http://southafrica.smetoolkit.org/sa/en

Box 4.6.2.1: Suggested actions

➔ **More understanding is needed on how to bridge international awareness and commitments with learning how to implement sustainability in operations**. In particular, business and industry are now looking for more technical education and training for implementation of sustainability-related practices such as low carbon design and production, full cost accounting and sustainability reporting. Work with human resource managers to identify skills gaps and training requirements will be an important entry point for ESD in the private sector.

➔ **Formal and non-formal education processes need to shift from teaching frameworks and models** to developing critical analysis and decision-making skills that will help managers to deal with complexity and rapid change. Whole-systems thinking, together with multidisciplinary knowledge needs to be encouraged, as well as social, multi-stakeholder learning approaches.

➔ **More attention is needed to provide SMMEs with the knowledge and capacity to adopt a sustainable development-oriented approach to their business practices, including mechanisms on how to capture these practices results and impacts**. For those social and environmental enterprises already working towards sustainable development, attention should be given to building their capacity to improve their overall performance against triple bottom line indicators (social, environmental and business goals).

➔ **ESD should build on the participation of all stakeholders; including greater responsibilities of private sector, trade unions and labour market stakeholders in the following areas:** i) ESD system planning, governance, regulatory framework and financing; ii) analysis of the labour market; iii) the development of sustainable development curricula and the definition of qualifications; and iv) assessments and certification to include sustainable development.

These insights gained from the DESD may serve to frame actions in the coming years to advance ESD in the private sector.
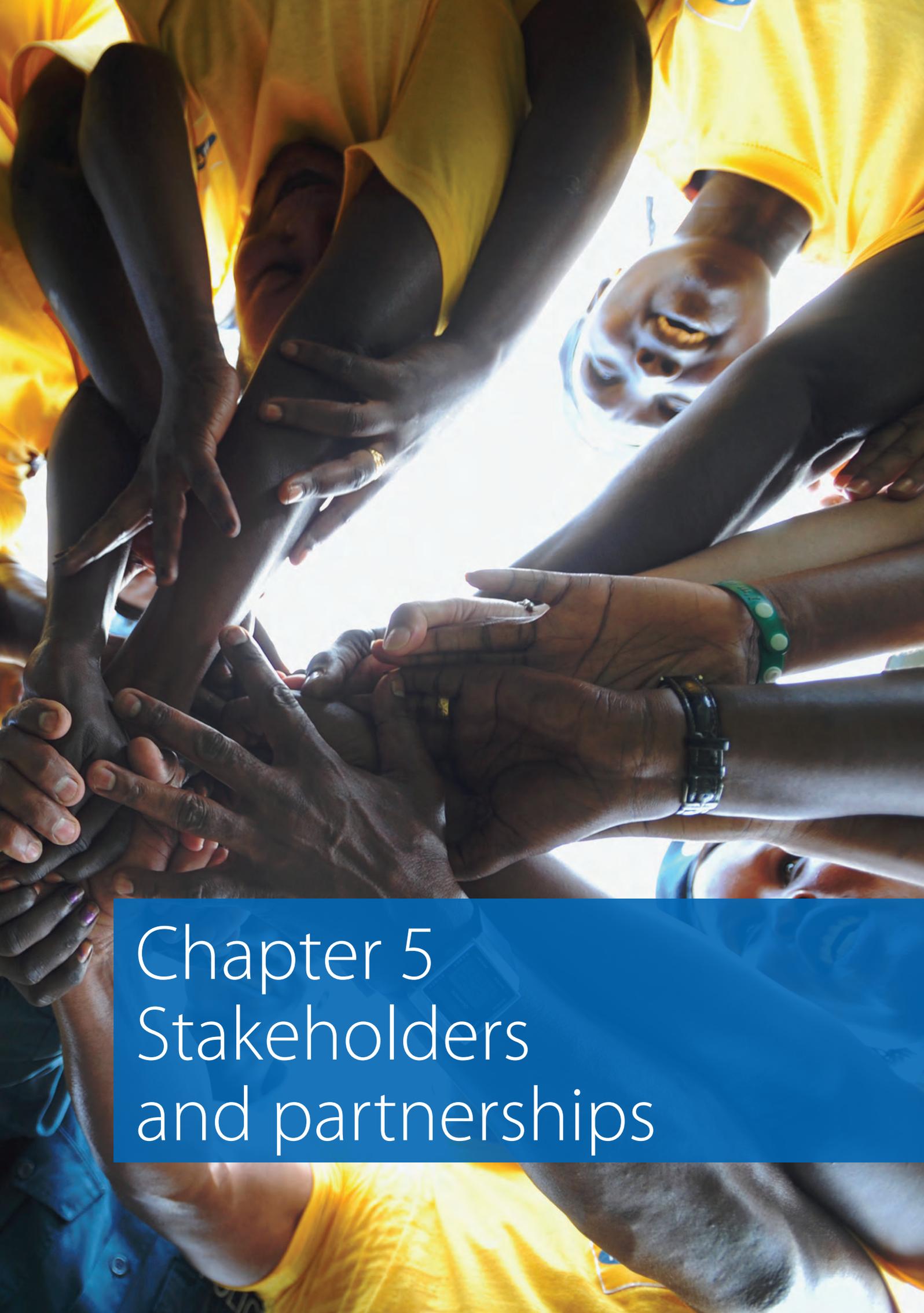
Chapter 5
Stakeholders
and partnerships

Stakeholders and Partnerships

Building bridges for ESD

Highlights

The DESD, with UNESCO as the lead agency, helped UN agencies to act on a shared agenda, and to mobilize other stakeholders to work with the UN on implementation.

At the Member State level, interdepartmental collaboration has advanced ESD.

Inspiring examples of private sector support for ESD in schools, universities and their surrounding communities can be found throughout the world.

National, subnational and local governments often appear to rely on civil society organizations to undertake ESD initiatives. Leveraging these civil society partners has been key to successful implementation in many countries.

Multi-stakeholder approaches are helping to advance whole-system change.

Challenges

Continued and increased leadership, both by UNESCO and across all UN agencies will be needed to align agendas, scale up mandates for action, mobilize resources and work together.

Civil society organizations would benefit from appropriate frameworks and resources to implement ESD in partnership with the public sector.

Increased capacities among all stakeholders to work in partnership, including improved understandings of the process of social learning and measures to assess and improve outcomes, are needed.

Stakeholders and Partnerships: ESD Actions around the World

PUBLIC SECTOR

High levels of financial support have been made available by the **European Commission** for the embedding of learning and education for sustainability across higher education in its member countries.

The **Government of Mongolia** and the **Swiss Agency for Development and Cooperation** have signed a Memorandum of Understanding to promote a sustainable future through ESD. The project will cover all 752 schools, all teacher education institutions and all education departments by 2020, directly benefiting more than 500,000 **children** and 26,000 **teachers** (SDC, 2013).

PRIVATE SECTOR

In Sri Lanka, **MAS Holdings Eco GO Beyond Schools Sustainable Development Leadership Camp** helped deliver a 'Mindset' toolkit featuring ESD concepts: Asia-Pacific priorities (such as climate change and food security); project development (to encourage independent learning and action-oriented thinking); and guidance on partnerships (engaging in traditional and non-traditional partners within the public and private sector). The one-and-a-half day workshop to develop the toolkit was attended by 55 **students** and 51 **teachers** from 28 **rural schools** (UNESCO, 2009d).

CIVIL SOCIETY

The **Emirates Foundation** signed an agreement with the UAE **Ministry of Education** to work in partnership on reforming public schools' curriculum to incorporate sustainability issues as well as financial literacy (WAM, 2014).

Green Cameroon is one of many organizations that 'carry on a Green Media Campaign aimed at further educating citizens through both formal and informal education on general environmental and developmental issues' (GME Q Green Cameroon, KS).

MULTI-STAKEHOLDER

The **Regional Centres of Expertise on ESD (RCEs)**, launched by the UNU, builds partnerships for thinking globally but acting locally. There are currently 129 **RCEs in Africa, North and South America, Asia-Pacific and Europe**, collaborating on the many themes of sustainable development such as climate change education, traditional knowledge, biodiversity, and sustainable consumption and production. RCEs have also provided capacity-building to teachers and others, as well as strategic support to the process of reorienting education systems, through communications, fundraising and engagement with policy-makers (Wals, 2014).

Chapter 5: Stakeholders and partnerships

> The progress of ESD in Viet Nam is the accomplishment of collective efforts and teamwork by ministries, UNESCO, associated institutions, civil society and the private sector.
>
> — UNESCO (2013h, p. 139)

The DESD has encouraged and fostered collaboration and information exchange, advancing the multi-stakeholder aspect of education and learning for sustainable development emphasized in all chapters of this report. Consistent with the findings in the 2012 M&E report is the complexity of interactions that have occurred during the DESD that reflects a broader trend towards boundary crossing, deeper learning and the transformation necessary to progress towards a more sustainable world. The emergence and expansion of cross-sector collaboration for ESD illustrates that meaningful progress towards sustainability can be achieved when multiple actors engage in a whole-system approach.

One of the keys to the success of all multi-stakeholder interactions is deciding which stakeholder groups should be involved, and the defining of roles, responsibilities and scope of action of each group. The first part of this chapter, therefore, takes a closer look at the contributions to ESD of individual stakeholder groups, including the public sector (both intergovernmental and national bodies), the private sector and civil society. An understanding of what each stakeholder has contributed, and can continue to contribute, is an important foundation for advancing multi-stakeholder processes.

5.1. Public sector

In the context of multi-stakeholder partnerships and collaboration, the role and scope of action of the public sector is to provide the leadership, framework and directions for programming consistent with public policy and the needs of all citizens. The public sector brings to the table its ability to convene actors and deploy instruments such as agendas and guidelines, financial resource allocation, training and capacity-building, as well as knowledge acquisition and sharing that will support how partners can contribute to ESD programmes.

Intergovernmental agencies

At the intergovernmental level, various agencies of the UN have worked together to frame global SD policies and frameworks, mobilize resources and develop programming to encourage and build the capacity of Member States to act. With UNESCO as the designated lead agency, UN agencies have responded to the mandate for the DESD through 10 years of bringing various stakeholders together (within and beyond the UN itself), setting agendas, undertaking research, building capacity and other actions related to ESD.

Education champions have existed in most UN agencies for some years, pursuing work on many aspects of ESD, including: UNESCO's early work on Agenda 21 chapter 36; UNEP's environmental education and training work; FAO's Education for Rural Peoples programme, promoting education as a tool for advancing the development of the poor

and marginalized in rural areas; and UNICEF's commitment to access and to quality education for children. However, the DESD has provided a clear mandate and increased scope for action on ESD across the UN. This has contributed to important achievements in moving ESD forward within UNESCO and other UN agencies (See Box 5.1.1.1).

Box 5.1.1.1: Examples of key UN achievements

UNESCO

➤ **On climate change:** Since 2009, UNESCO's Climate Change Education for Sustainable Development (CCESD) programme has helped countries strengthen the educational response to climate change. Focusing particularly on Africa and Small Island Developing States (SIDS), the programme aims at facilitating dialogue through regional and international expert meetings, developing national programmes in pilot countries and providing technical guidance.

➤ **On DRR:** A UNICEF and UNESCO mapping of DRR integration in 30 countries' curricula led to a guidance instrument for the inclusion of DRR in school syllabuses. This instrument is aimed at policy-makers in governments, NGOs and UN agencies, and will be enhanced by the co-creation of an inter-agency platform on education and DRR.

➤ **On Biodiversity:** UNESCO has contributed to major international conferences and workshops for the advancement of biodiversity education. UNESCO's *Exploring Sustainable Development: A Multiple-Perspective Approach and a Biodiversity learning kit*, as well as other resources such as animated videos, serve to support UNESCO Associated Schools coordinators and teachers, as well as other NGOs and education stakeholders.

FAO

➤ **On Youth:** Youth and United Nations Global Alliance (YUNGA)'s Challenge Badge series help promote competencies like critical thinking, imagining future scenarios and taking collective decisions outside of the classroom while engaging in fun and educational activities. Aimed at children and youth, these badges have been taken taken up by the Girl Guides **(10 million members in 145 countries)** and the Scout movement **(32 million members in 161 countries)**.

UNEP

➤ **On SCP:** UNEP DTIE's Education for Sustainable Consumption (ESC), an integral component of ESD, 'aims to contribute to the individual's ability to manage his/her own life while also participating in the stewardship of the global society's collective life' (GME Q, UNEP IAC). As the secretariat of the 10-Year Framework Programme on Sustainable Consumption and Production (SCP), UNEP is now developing a programme on sustainable lifestyles and education, building on ESC.

➤ **On engagement with the higher education institutions:** The goal of the Global Universities Partnership for Environment and Sustainability (GUPES) is to increase the mainstreaming of environment and sustainability practices into universities, with over 370 universities now committed.

UNFCCC

➤ **On climate change:** The UN Global Alliance on Climate Change Education, Training and Public Awareness aims to maximize efforts, expertise and resources for climate change education activities, and support Parties to the Convention in climate change education efforts.

UNICEF

➤ **On climate change and DRR:** In response to UNICEF's efforts to raise awareness and advocacy on ESD through publications, brochures, media and websites, 47 countries have adapted the Child Friendly Environment concept to incorporate climate change and environmental education into their curricula.

UNU

➤ **On multi-stakeholder engagement and networking:** The Regional Centres of Expertise (RCEs) network (129 members) has been strengthened as a platform for cross-boundary social learning.

In order to catalyze and coordinate efforts with other UN agencies, UNESCO established the Inter-Agency Committee (IAC) for the DESD. Recognizing the need to 'ensure adequate and ongoing international consensus and commitment' (UNESCO, 2013n), the IAC was designed to be a multilateral forum, involving representatives from relevant UN programmes, the World Bank and UN specialized agencies. Actions included the mobilization of political will for ESD, as well as developing partnerships and mobilizing resources, fostering a global exchange and monitoring progress (UNESCO, 2013n). Fifteen agencies agreed to participate at the start of the DESD, and it has grown to 22 members today.

UN agencies and UNESCO sections and offices report that at the beginning of the decade, ESD was barely thought of in policy or planning. But today, at the end of 10 years of work, ESD is considered well in progress within the UN system.

Figure 5.1.1.1: Progress on ESD in strategy or policy for UN agencies
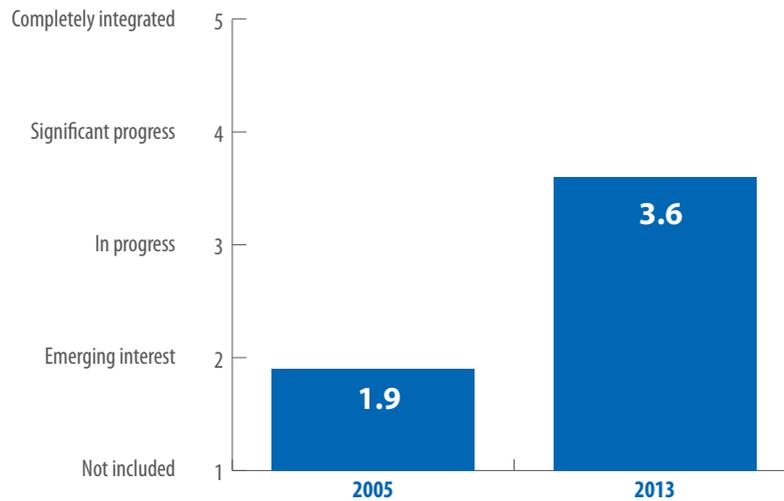
Respondents were asked to rate progress on a scale of 1 to 5, with 5 being the highest. This chart presents an average of the reported ratings.

Source: UNESCO GME Questionnaire UN.

Framing and sharing the agenda on ESD among UN agencies – A One-UN approach

UN agency respondents to the UNESCO Questionnaire confirmed that the importance of initiatives like the DESD provide legitimacy, mandates and the space for agencies to act on a shared agenda, and to mobilize other stakeholders to work with the UN on implementation. As UNICEF points out:

> The DESD has been a useful external platform to help drive the internal UNICEF agenda on sustainability in relation to the humanitarian and resilience agenda which has been mounting during this period due to increasing natural and manmade disasters. Targeted work at UNICEF on climate change education has helped UNICEF to articulate the education change agenda in relation not only to the need for environmental mainstreaming in the education sector, but to catalyse the work on mainstreaming sustainability in education systems within the broader resilience agenda towards a system of quality.
>
> – (GME Q, UNICEF)

Clearly, such individual agency commitments are important. Even more so is the power of cross-agency collaboration and sharing of a common purpose that has also increased in recent years. Throughout the DESD, members of the IAC shared knowledge of parallel education activities, encouraged an improved flow of information and pursued opportunities for joint advocacy and programme work, especially in the context of Rio+20 and side events for the sessions of the Commission for Sustainable Development (CSD) and the COPs of the Rio conventions.

The importance of this type of cross-agency collaboration can be seen more specifically in the area of TVET. UNESCO-UNEVOC, the International Labour Organization (ILO), the OECD, the Asian Development Bank and others have established the Interagency Working Group (IWG) on Greening Technical and Vocational Education and Training (TVET) and Skills Development to promote capacities for sustainability in TVET and skills development through advocacy,

good practices sharing and dissemination. The IWG's effective interventions in global TVET and skills discourses led to a request by the G20 Development Working Group on the Human Resources Development Pillar for a set of policy recommendations in 2013 to advise G20 governments on meeting skills' demand for green jobs.

The mandate of the DESD has opened doors for inter-agency collaboration and signals fertile ground for a 'One-UN' approach to ESD, in which all UN agencies share a common understanding, objectives and work together towards shared goals. As UNISDR asserts, 'joint advocacy work between those working on sustainability challenges and those involved in the education sector reinforces coherence of messages to Member States' (GME Q UNISDR). A One-UN approach will strengthen the coherence of messages on ESD for Member States and other partners, including the private sector and civil society.

Mobilizing resources and programming

At the individual agency level, UN agencies have looked to Member States to mobilize support for activities related to ESD. For example, Japan, Germany, Sweden, Denmark, among others have championed and supported the work of UNESCO through extra-budgetary funds (UNESCO, 2013a, p. 5).

However, evidence of a cross-agency approach to mobilizing resources and support for ESD can also be found. The reporting of the United Nations Development Assistance Framework (UNDAF) illustrates progress towards a One-UN approach to resourcing and supporting ESD at the national level. UNDAF is a strategic programming framework agreed to between a government and a United Nations Country Team that offers support of UN agencies to national development priorities. Its purpose is to maximize the development impact of all UN programmes and initiatives operating at the country level. In a brief review of UNDAF, 278 reports submitted by 129 countries covering the period 2000 – 2014, 54% of reporting countries in the 2000 – 2005 time frame to 70% of countries in 2010-2014 have included ESD or ESD-related principles in their national development plans. Countries such as Barbados have prioritized the improvement of sustainable development curricula at primary, secondary and tertiary levels of education (UN, 2011). Other countries, such as Egypt, need support to increase public awareness on global and national environmental issues (UN, 2006a). This increase in requests for ESD support reflects growth in a One-UN approach to provide assistance towards those ESD priorities through the UN Country Team.

More research will be needed to understand how the inclusion of ESD-related principles into these national development plans has mobilized UN resources and strengthened countries' abilities to develop effective education, training and public awareness for sustainable development programmes for their citizens.

Table 5.1.1.1: Increase of ESD-related mentions in UNDAF reports

	2000-2005	2005-2010	2010-2014
Total Number of UNDAF reports	77	98	103
Number of reports mentioning ESD-related principles	44	63	73
Percentage of reports mentioning ESD-related principles	54%	64%	70%

Source: UNESCO (2014e), based on Review of UNDAF reports.

Strengthening ESD programming through inter-agency collaboration

Through the IAC mechanism, real progress on collaboration in education was made with the secretariats of the Rio Conventions, with UNESCO, UNEP, UNU and UNICEF, among others, providing needed capacity to the secretariats to mobilize Parties to the Rio Conventions to address education, training and public awareness commitments. The UNCBD was able to involve other UN agencies in its efforts to develop a global programme on Communications, Education and Public Awareness (CEPA), adopted by UNCBD parties as a programme of work. The UNFCCC points to its

joint work with the United Nations Institute for Training and Research on training in climate change. UNEP is working in collaboration with UNESCO and other IAC members on the 10-Year Framework of Programmes on Sustainable Consumption and Production to accelerate the shift towards SCP in both developed and developing countries, one of which deals with lifestyles and education. As the UNCCD has reported, 'coordination and cooperation with other UN agencies amplified the magnitude of outputs' (GME Q UNCCD).

Recognition and understanding of UNESCO's own role in ESD has been strengthened at the end of the DESD. IAC members now have more knowledge of what UNESCO does, and of its connection to the ministries of education across its Member States; The Convention on Biological Diversity Conference of Parties has given UNESCO the lead on biodiversity education; UN Habitat is exploring ESD and urban development with UNESCO; and ILO is working with UNESCO on defining green skills. At regional and field office levels, UNDP and FAO cooperate with UNESCO on ESD in schools and youth programming. Most notably, UNESCO's collaboration with UNICEF has served to build momentum for education in the Post-2015 Development Agenda and the SDGs.

While the 2009 DESD M&E Report indicated that much work remained to be done before a concerted 'delivering as one' UN approach to ESD becomes a reality (UNESCO, 2009a), in 2012, the M&E Report concluded that:

> ESD is a far more important part of the discourse and project implementation within the UN system [in 2011 compared to 2009]. In fact, ESD is becoming the norm rather than a peripheral concept.
>
> — UNESCO (2012a)

At the end of the DESD, in 2014, there is now a growing alignment across the UN towards recognizing a broader vision and purpose for education in support of global goals, with significant advances towards mainstreaming education across major sustainable development agendas. This includes a strong emphasis on the importance of technical vocational skills and training for greening economies.

There are still gaps in engagement, such as with UN agencies that have had no senior level focal point for ESD for some years. In other agencies, while there may be strong focal points in headquarters, the commitment may not have filtered down to most agency field offices. Despite these gaps, active IAC members affirm that their respective agencies are now aware of ESD and are advocating for a new phase of work that is practical and integrated across the UN, or as UNESCO and UNICEF describe in their report on the Post-2015 Development Agenda dialogue, a 'single, harmonized, global education framework' (UNESCO and UNICEF, 2013, p.12). In summary, **continued and increased leadership, both by UNESCO and across all UN agencies will be needed to align agendas, scale up mandates for action, mobilize resources and work together to advance ESD**. Attention to these issues will contribute to strengthening the role of UN agencies as partners in multi-stakeholder arrangements.

Governments

At the national, subnational and local levels, the role and scope of action for governments is to create the enabling environment and find the resources that they and their partners (private sector, academia and civil society) need to guide and support ESD. **The convening power of governments is particularly important in drawing together a multiplicity of interests**, both within the country, but also across borders in support of other governments with shared interests.

Sharing the ESD agenda across government departments and agencies

Within the structure of national governments, responsibility for DESD actions has usually rested either with ministries of education or with ministries of the environment. During the DESD, 80% of Member States responding to the UNESCO

Questionnaire indicated establishment of ESD focal points within government to facilitate internal coordination between the lead agencies and other departments. As discussed in the national policy chapter, there is evidence of how interdepartmental collaboration has served to strengthen the advancement of ESD, as well as concerns over the challenges in creating and implementing a common agenda.

In addition to education and environment departments, other government departments and agencies have also shared the ESD agenda. In Switzerland, for example, the establishment of a new institution for the implementation of ESD has been undertaken as a collaborative effort between different federal offices (Health and Development as well as Environment) and the Cantons (which have the lead in areas related to Education) (GME Q Federal Office of Public Health, KS). In Germany, Box 5.1.2.1 illustrates how other levels of government and related agencies outside of those responsible for education can engage in supporting ESD not only in their country, but in collaboration with other countries as well.

Box 5.1.2.1: Germany – Training future ESD leaders

Germany's ESD 'leadership learning' project was developed through a partnership between the German Ministry for Economic Cooperation and Development and the German federal enterprise Deutsche *Gesellschaft für Internationale Zusammenarbeit* (GIZ). The programme has been designed to bring together future leaders in ESD from Germany, developing countries and emerging economies. Selected candidates coming from various sectors (government, NGOs, and research institutions) and from four countries (Germany, India, Mexico and South Africa) participate in a seven-step training process, which not only includes an educational approach to ESD-centered knowledge, but also provides practical experience through a 10-week internship. By reinforcing the individual competencies of future ESD leaders, this partnership seeks to build an international network of experts. As of 2014, 17 participants have graduated from the programme.

Source: GIZ (2012).

Mobilization of capacity and resources

How governments bring resources to the table and build capacity for ESD is an ongoing challenge, particularly in developing countries. But even in Europe, countries have had to work together to share and distribute resources necessary for advancing ESD. For example, the European Commission has made significant contributions towards supporting the embedding of learning and education for sustainability across higher education in its member countries. It has not been possible to quantify the levels of investment over the last 10 years across multiple funding initiatives, as these figures are not publicly available. However, a review of the literature and web-resources in ESD points to the high levels of financial support that have been made available across the European region for international collaboration in this area during the DESD years.

Developing countries have benefited from the mobilization of financial and technical support from developed countries. Swedish, UK, Australian, Canadian, Japanese and Dutch aid agencies have all played an important role in funding curriculum development for sustainability in Africa and Asia as well the Pacific Islands (e.g. AusAid, 2010; MedIES, 2010; MEXT, 2012; SIDA, 2011). Support from developed countries often extends beyond the provision of aid to include the exchange of training and experience in successful approaches to ESD implementation.

Box 5.1.2.2: Kenya and Israel – Mobilizing capacity and resources for ESD

In acknowledgement of the importance of ESD, the Republic of Kenya appealed to the Israel Ministry of Foreign Affairs to establish a joint project directed towards the promotion and implementation of ESD into the curricula of learning institutions. A Memorandum of Understanding was signed in January 2013 between the parties to implement the four-year plan. The project includes training programmes in both Kenya and Israel and is based on a 'think global, act local' model that has been successfully implemented in Israel during the past six years (and now extended to Kenya). It provides schools and the community with the necessary tools for assessing their actual needs and existing resources, with particular attention to issues relevant to sustainable agriculture. Kenya now has 900 alumni and Israel plans to extend the four-year programme. Joseph Karuga, Chair of the Kenya Primary Schools Head Teachers Association, suggests that the programme will assist the country to ensure that the young generation will lead actions in schools and in the country's agriculture sector.

Source: MASHAV (2013); Wanyama (2014).

Box 5.1.2.3: Mongolia and Switzerland – Mobilizing capacity and resources for ESD

The Government of Mongolia and the Swiss Agency for Development and Cooperation (SDC) have signed a Memorandum of Understanding (MOU) to promote ESD for the people of Mongolia. The project will cover all 752 schools, 1–12 grades, all teacher education institutions and all education departments until 2020, directly benefiting more than 500,000 children (51%) and 26,000 teachers (80%). In addition to work under the MOU, SDC's Coping with Desertification Project (CODEP), in cooperation with the Ministry of Education and Science in Mongolia, is providing training aimed at integrating desertification issues into school subjects. An internationally recognized Eco-school programme, which is now being run with CODEP's support at 77 secondary schools throughout the country, is viewed by the Ministry as an ideal vehicle to test and promote ESD.

Source: SDC (2013).

Strengthening ESD programming

At the end of the DESD, reporting suggests that tens of thousands of capacity-building, information sharing and research and publishing initiatives were implemented and involved national and subnational government agencies as a means to strengthen ESD policy and programme implementation. A sample survey was conducted in 2013 with members of the International Network of Teacher Education Institutions (IN TEI) to identify more closely the role of ministries of education in influencing ESD practice. The findings provide a picture of the role of governments supporting other stakeholders in the education system. Well over a third (41%) of respondents agree that governments are providing funding for workshops for capacity-building, and close to a third (28%) pointed to governments building the knowledge base for ESD through support for research (Mckeown and Hopkins, 2013). In Uganda, for example, over 20,000 people, including teachers, teacher trainers, curriculum developers, local governments and universities, have been trained in ESD through workshops supported by the Government of Uganda and organized by the National Environment Management Authority and the Uganda National Commission for UNESCO and NGOs (GME Q Uganda, MS).

As a support to future efforts, it would be useful to explore further good practices in government agency involvement in ESD beyond their central roles in setting policy and revising curriculum, to understand and replicate how governments can broaden engagement, mobilize capacity and resources and advance implementation with other stakeholders.

5.2. Private sector

In many countries, the private sector has also played an important role in advancing ESD, in keeping with their corporate social responsibility (CSR) commitments to serve the communities where their businesses operate. Typically, the involvement of the private sector in ESD has included participation in national ESD coordination groups and RCEs, assistance with technical and financial support for demonstration projects in schools, the co-development of curriculum support materials, support to NGOs for raising public awareness and capacity-building on ESD, and participation in community sustainability workshops.

The private sector has also supported research and innovation to find more eco-friendly technologies and processes that can address environmental challenges facing the world. This was done through funding the work of individual scholars or by supporting the establishment of programmes and facilities at institutions of higher education and research. Inspiring examples of private sector support for ESD in schools, universities and their surrounding communities can be found throughout the world, but it is difficult to assess more systematically what the private sector contributions to the DESD have been, due to the low response from private sector representatives in UNESCO's Questionnaire.

However, many Member States point to the importance of private sector engagement. As the Republic of Korea suggests, the private sector often provides complementary services that governments may not have the additional capacity to address, such as educational support to students from low-income brackets and implementing after-school programme assistance activities (GME Q Republic of Korea, MS). Thus, the private sector can work collaboratively with the government to improve the infrastructure and quality of education in schools, as well as to provide financial support to students in need.

It should be noted that private sector involvement in public schools has been subject to controversy at times, whether related to provision of meals and snack foods to students, branding sports uniforms, commercial advertising in educational media content or support for skills-specific activities such as the introduction and use of information technology (Ichilov, 2012; Molnar, 2006). But what the DESD has shown over the past 10 years is that benefits to all stakeholders can be achieved when businesses engage with governments and communities to support ESD.

Key to the success of this involvement has been a clear determination of roles and responsibilities of the private sector in public sector programming in order to address potential controversy and ensure common understanding. For example, Kenya has put in place an ESD implementation plan that clearly outlines the roles of all stakeholders to include government, teaching and learning institutions, civil society organizations, private sector and the media (NEMA, 2008). Indeed, national ESD action plans created during the DESD has identified the private sector as a key stakeholder, although there is less evidence as to whether the inclusion of the private sector in National ESD action plans have led to increased involvement of the private sector in ESD. The following Box 5.2.1 and Box 5.2.2 provide more insight into the practical contributions that the private sector makes to ESD.

Box 5.2.1: Asia and the Pacific region – ESD toolkit for success

In the Asia and the Pacific region, UNESCO provides guidance on how the private sector can be a partner at the school and community level through its Creating Sustainability Mindsets toolkit, developed in cooperation with its private sector partner in Sri Lanka, MAS Holdings and MAS Holdings Eco GO Beyond Schools Sustainable Development Leadership Camp. A total of 55 students and 51 teachers from 28 rural schools from various districts in Sri Lanka participated in the one-and-a-half day workshop to develop the pilot toolkit. The toolkit features the following content: ESD concepts; Asia-Pacific priorities (such as climate change and food security); project development (to encourage independent learning and action-oriented thinking); and guidance on partnerships (engaging in traditional and non-traditional partners within the public and private sector).

Source: UNESCO (2009d, p. 4).

Box 5.2.2: Viet Nam – Shaping a more sustainable future

A unique partnership, which links UNESCO, Viet Nam's Ministry of Education and Training (MOET), and Samsung, is supporting Viet Nam in shaping a more resilient and sustainable learning society. This joint project targets i) the development and implementation of e-learning training courses in the areas of climate change, disaster risk reduction, and biodiversity conservation and restoration towards the preparation and implementation of school preparedness plans; ii) the creation of an enabling environment for ESD through awareness raising sessions for principals, parents, national and local authorities, and the media; iii) the promotion of the use of satellite imagery as a tool for evidence-based decision-making and awareness raising; iv) the development of community action plans and support to media organizations in communication plan development; and v) the contextualization and application of UNESCO's strategy for managing risks and developing disaster risk management plans for World Heritage Sites, including Hoi An Ancient Town, Hue Monuments Complex and Thang Long Royal Citadel.

Source: UNESCO (2014d).

As UNESCO's experience in Viet Nam illustrates, the private sector can provide significant financial support to ESD programming in schools and the community at large on critical issues such as climate change, disaster risk reduction and biodiversity. The experience in Sri Lanka's ECO Go Leadership camp also demonstrates how companies can help to mentor students, teachers and individuals by providing opportunities to advance their learning about sustainable development.

What is less clear, however, is the connection between the support that the private sector provides to ESD and actual changes in business operations towards sustainability. Is the participation in ESD actions in schools and communities in and of itself a learning and capacity-building process for business, contributing to the improvement of business activities along economic, social and environmental dimensions? A more in-depth exploration of this question may strengthen the case for further private sector engagement in ESD in the years to come.

5.3. Civil society

Over the course of the DESD, civil society organizations (CSOs) have played a central role in advancing ESD. CSOs refer to a wide array of organizations: community groups, NGOs, labour unions, indigenous groups, charitable organizations, faith-based organizations, professional associations and private, not-for-profit foundations (World Bank, 2013). Through their diverse memberships, and background and structures, CSOs have been instrumental in undertaking a wide range of strategies and activities in support of ESD.

At the end of the DESD, nearly half (45%) of the stakeholders responding to the UNESCO Questionnaire represent CSOs that are reporting on an extensive range of activities, such as the following:

- undertaking research related to ESD;
- developing ESD curriculum support materials and demonstration projects in schools, TVET and HEIs;
- creating ESD capacity-building programmes for educators;
- building skills and capacity with youth and adults outside of the formal education system; and
- building networks and dialogues and managing major communications programmes to strengthen public awareness of sustainable development challenges and solutions.

CSOs have also urged governments to take action on ESD through advocacy campaigns and partnered with businesses as a means to promote ESD.

All levels and types of CSOs have been involved in the DESD. For example, both WWF International and its country level offices have been champions and supporters of ESD during the DESD. National CSOs have helped to implement ESD at the local level, (e.g. the *Association d'Education Environnementale et de Protection des Oiseaux au Maroc*, working to protect flora and fauna across Morocco). Think tanks from the education domain, such as the Korean Institute for Curriculum and Evaluation, have also contributed to ESD research and support materials; as have those think tanks from the sustainable development field, such as the Wuppertal Institute for Climate, Environment and Energy in Germany and The Energy and Resources Institute in India, and those that deal with both education and SD, such as the Centre for Environmental Education in India.

The examples below illustrate only a few of the broad range of CSO actors involved, emphasizing various types of interventions. Although non-exhaustive, these examples provide a small sample of the most valuable ways that civil society is promoting ESD.

Curriculum support and resources: The Regional Environmental Centre for Central and Eastern Europe (REC) based in Hungary has created and implemented Green Pack, an innovative multimedia educational kit for schoolchildren between the ages of 11 and 15. The Green Pack has been introduced in 18 countries in Central and Eastern Europe and Asia, while approximately 40,000 teachers have been trained to use the Green Pack materials. The pack has also been translated into 20 languages to reach over four million students, helping to change the way in which the teaching of sustainability is approached (GME Q Regional Environmental Center for Central and Eastern Europe, KS).

The Kenya Organization for Environmental Education (KOE), in partnership with Alliance of Religions and Conservation (ARC) is promoting faith-based ESD by mainstreaming religious wisdom into the primary school curriculum, enhancing the faith-based value system and positive behaviours in the school and community in order to promote sustainable development. The programme is empowering teachers and other ESD practitioners with the knowledge, skills and values to find innovative solutions to their environmental challenges and is complementing and bridging gaps in the existing curriculum support materials (GME Q Kenya Organization for Environmental Education, KS).

Independent philanthropic foundations have also provided important financial and capacity support for ESD. In April 2013, the Emirates Foundation signed an agreement with the Ministry of Education to work in partnership on reforming public schools' curricula to incorporate sustainability issues as well as financial literacy. Developed in close collaboration with experts, the revised curriculum not only encompasses subjects such as environment, energy, food security and peaceful co-existence but also promotes more innovative teaching methods, such as participatory learning (WAM, 2014).

Educator preparation: Earth Charter International (ECI), based in Costa Rica, has developed a number of ESD-related educational materials for use by in-service teachers and teacher educators worldwide, such as stories and teacher guidebooks. As of 2011, ECI has been offering free ESD webinars and, as of 2013, is now offering a one-week in-person training programme (fee-based) for educators to deepen their understanding on the role of education in fostering a culture of sustainability.

In some countries, governments rely on support from CSOs, as they may be the only available organizations developing ESD learning resources and educator support for primary and secondary schools. In Cameroon, at the policy level, the Ministries of Basic and Secondary Education and the Policy Department of the Ministry of Environment, Nature Protection and Sustainable Development endorsed the ESD Declaration for the country; but then the 'Education ministries authorized the World Wildlife Fund (WWF) to implement ESD in primary and secondary schools throughout Cameroon' (GME Q Cameroon, MS).

Research and demonstration projects: CSOs contribute to innovation in ESD by having the flexibility to take risks, undertake research and experiment in ways that governments or the private, for-profit sector may not have the capacity to undertake. In Sweden, WWF has initiated a model school programme for developing best practices and learning examples of whole-school approaches in ESD. IUCN and its Commission for Education and Communication have worked closely with UNESCO-Bangkok and Macquarie University on Asia-Pacific Guidelines for the Development of National ESD Indicators (UNESCO, 2008b).

Non-formal education and public awareness: CSOs are also significant actors in non-formal education and public awareness raising through media campaigns, the provision of workshops and training, demonstration projects and other efforts to inform citizens and strengthen their ability to live more sustainably. Green Cameroon is one of many organizations that are 'carrying on a Green Media Campaign that aims at further educating both the formal education and informal education on general environmental and developmental issues' (GME Q Green Cameroon, KS).

In Panama, the organization *FE Y ALEGRÍA Panamá* reported to UNESCO at the end of the DESD on their programme of work for the improvement of adult education and the inclusion of indigenous communities in education. Working with another NGO, Media Rights, their public awareness raising campaign has reached one million people across the country. They have held workshops to train participants on education rights, reaching approximately 3,000 people (GME Q FE Y ALEGRÍA Panamá, KS).

Many CSOs work across all types of education interventions, from curriculum development to practice and implementation, through to teacher training.

> **Box 5.3.1:** Plan International – Educating for resilience
>
> Plan International is one of the oldest and largest children's development organizations in the world, working in 50 developing countries across Africa, Asia and the Americas to promote child rights and the delivery of climate change and disaster risk reduction education. This work is being accomplished through the development of locally adapted training materials and toolkits, conducting research on children and climate change impacts, and empowering children and their communities to implement their own small-scale risk reduction and adaptation initiatives. Plan Thailand has developed disaster risk reduction and climate change curriculum, which has been piloted in 16 primary schools and subsequently approved by the Ministry of Education, while Plan Laos is setting up children DRR clubs in 30 schools. In Viet Nam, over 900 teachers in three provinces have been trained in climate change education materials using explorative teaching methods. In Indonesia, Viet Nam and Thailand, children's groups have implemented over 50 small-grant activities, including activities such as rainwater harvesting in school, testing organic vegetable and climate smart irrigation systems in school gardens, building check dams, recycling campaigns, as well as child-led climate change awareness events.
>
> *Source:* Plan International (2014).

National, state and local governments often appear to rely on CSOs to undertake ESD initiatives. Leveraging these civil society partners has been key to successful implementation in many countries at regional, national and local levels. More research is warranted to investigate the extent to which governments explicitly or tacitly anticipate support from civil society, and whether and how that support is welcomed, mobilized and resourced. CSOs would benefit from appropriate frameworks and resources to do this important work in partnership with the public sector.

5.4. Multi-stakeholder approaches

Over the past 10 years, each of these stakeholder groups has demonstrated its commitment and engagement in advancing ESD. However, the power of their contribution has been multiplied through the process of working together across sectors and boundaries on a shared agenda. The DESD has been characterized by wide-scale collaboration involving multiple stakeholder groups. By the end of the DESD, over 400 new national and international networks and partnerships have been launched, not including growth in existing networks and the many community-level collaborations with local schools through 'whole-school' approaches. In many regions, there is evidence of governmental support for partnerships with civil society and non-governmental organizations on a variety of ESD projects and activities and in policy formation (Didham and Ofei-Manu, 2012).

The UN defines multi-stakeholder partnerships as voluntary associations between different stakeholders (public and non-public) in which all participants agree to work together to achieve a common purpose or undertake a specific task (UN, 2006b). The challenge of bringing groups together that have different mandates, understandings and abilities is considerable, but it can lead to innovation, strengthening and extending of capacity among partners, increased resource allocation to ESD goals and, ultimately, to the scaling up and replication of successful implementation (Malena, 2004).

A central component of multi-stakeholder partnerships is the process of social learning – the formal and/or informal processes to share knowledge and lessons at different levels and across different communities to support problem solving to address sustainable development challenges (Baste, Ivanova and Lee, 2012). Social learning is recognized as a means to actively involve people with different backgrounds and perspectives in deep or fundamental processes of change (Wals, 2013). All across the globe, multi-stakeholder partnerships have emerged that use social learning to co-create pathways towards sustainability.

The sustainable development community has used the multi-stakeholder partnership approach extensively, from the early explorations of co-management of resources in the 1980s and 1990s to the global partnerships emerging from the 2002 World Summit for Sustainable Development and, more recently, the many multi-stakeholder commitments from Rio+20. During the DESD, we saw for the first time wide-scale application of multi-stakeholder processes for reorienting education systems. Lessons learned from the DESD suggest that multi-stakeholder processes are helping to coordinate and advance ESD at national and local levels and are essential for whole-system transformation. However

this requires increased capacities among all stakeholders to work in partnership, including improved understandings of the process of social learning and measures to assess and improve outcomes.

Multi-stakeholder processes help to coordinate and advance ESD at the national and local levels

National Coordination Bodies: One of the most influential instruments for bringing stakeholder groups together to advance ESD has been the establishment of National Coordination Bodies. By sharing the process of ESD implementation across a spectrum of interests, these coordination mechanisms have served to inform and enhance government policy, have mobilized actions with private sector and civil society actors and have secured greater likelihood of achieving the goals of ESD.

Box 5.4.1: Germany – Effective coordination for ESD Implementation

In Germany, while educational policies are formulated predominantly in the 16 States (Länder), stakeholder coordination for the DESD happens through the National Committee for Education for Sustainable Development, established in 2004 by the German Commission for UNESCO, with support from the Federal Ministry of Education and Research. It is an advisory body made up of 30 stakeholders from different sectors. Its task has been to set strategic priorities for the implementation process and to pursue political advocacy for ESD. A Round Table of the DESD works with the National Committee, consisting of more than 100 stakeholders from politics, the private sector and civil society, as well as from federal, state and municipality levels. This coordination has helped to create the bridge between the decision-makers in ministries and the stakeholders on the ground. Success in ESD adoption in Germany can be attributed in no small part to the effectiveness of national coordination, (e.g. a recommendation for ESD in schools has been adopted by the Standing Conference of the Ministers of Education and Cultural Affairs). The overall structure has been so effective that other countries have taken it up as an example.

Source: German Commission for UNESCO (2013); GME Q Germany, MS.

Box 5.4.2: China – Effective coordination for ESD implementation

In China, the China National Working Committee for UNESCO Project on ESD (CNWCESD) has been active throughout the DESD, promoting ESD to various levels of government and educational institutions. A focus on ESD was incorporated into the National Medium and Long-term Outline for Education Reform and Development (2010 – 2020). This indicates that ESD has become a necessary part of national educational policy. This 10-year plan outlines the goals of China's educational reforms as promoting equal access to education, improving quality and boosting sustainable development capacity.

Source: GME Q China, MS; Han (forthcoming).

The importance of national multi-stakeholder processes can also be seen in those countries where different approaches have been taken. In South Africa, for example, ESD processes have grown and evolved from the ground up through a strong practice-based community that has extensive knowledge and experience in supporting active learning, working for education and environmental change through changes in the curriculum. But despite some success with integration into various policies and strategies, the absence of a national coordinating body and strategy has impeded the implementation and uptake of ESD (UNESCO, 2013h).

These national coordination mechanisms have proven in many countries to be important instruments for advancing ESD policy and practice.

The role of National Commissions for UNESCO: The National Commissions for UNESCO are established by Member States for the purpose of connecting education, sciences, culture and communication organizations in their countries with the work of UNESCO. There are currently 199 National Commissions for UNESCO around the world.

The National Commissions have played an active role in the DESD by providing a platform for sector engagement. In some cases, such as Senegal, the National Commission has served as the official national focal point on ESD and has contributed actively to ESD programming. The Senegal National Commission has contributed to ESD internationally as well through participation in meetings in Dakar, in 2008, on the global framework for monitoring and evaluation

of the DESD. In Europe, the UK National Commission has served an important role in promoting, monitoring and evaluating ESD progress in the UK, identifying 'future opportunities for enhancing the core role of education and learning in the pursuit of a more sustainable future' (UKNC, 2013).

The Commissions also serve as agencies of consultation, liaison and information, mobilizing and coordinating partnerships with national stakeholders, including civil society. Through their convening power, they have been able to bring together the many different actors necessary to reorient education systems, leading to increased awareness of and participation in the DESD.

The Regional Centres of Expertise on ESD: Launched and coordinated by UNU-IAS as a contribution to the DESD, it is a valuable example of a local-level multi-stakeholder model for ESD. Growing in size from initially seven RCEs in 2005 to currently 129 RCEs and located in all regions of the world, the network(s) serves as innovative platforms of information sharing, action and dialogue. During the Decade, RCEs have provided research on sustainable development themes, capacity-building to educators and others, as well as strategic support to the process of reorienting education systems, through communications, fundraising and engagement with policy-makers.

Box 5.4.3: RCE – Advancing ESD at the local level

The Regional Centre of Expertise of Greater Sendai (RCEGS) in Miyagi, Japan, is one of the RCE pioneers. Established in 2005, with Miyagi University of Education as a lead partner, RCEGS is focused on addressing sustainable regional development through education and learning in Sendai, with its population of one million people, the rural town of Tajiri and the coastal city of Kesennuma. RCEGS is addressing sustainable production, consumption and community revitalization through multi-stakeholder public participation in forums, expert panel discussions, symposiums, lectures, focus group discussions, study groups, fairs and festivals. The strength of the RCE model lies in its flexibility to adapt to the local context and culture and to truly engage a variety of people from different sectors to take action to address local sustainable development challenges.

Source: Wals (2014).

Multi-stakeholder approaches leading to whole-system redesign

During the course of the DESD, a shift towards a more fundamental rethinking of the key principles and assumptions underlying the systems in which ESD was to be integrated or expanded, has taken place. The emergence of 'whole-institution approaches' in schools, TVET and higher education institutions illustrates that meaningful progress towards sustainability can best be achieved when multiple actors engage in a whole-system redesign. Such a redesign not only requires visionary leadership, social networking, new forms of research and high levels of participation, but also the introduction and support of interactive, integrative and critical forms of learning, of which multi-stakeholder social learning is exemplary.

Partnership and social learning approaches can be found in all levels and types of education. For example, a brief survey of 446 UNESCO ASPnet schools in Japan (largely primary and secondary institutions) conducted by the Ministry of Education found that the majority (60%) were involved in efforts to strengthen partnerships with other schools and local stakeholders on ESD, with a third (35%) also reporting an increased involvement of the schools with their community, taking a 'more active role in local society' (Ichinose, 2014).

Multi-stakeholder approaches have proven essential to reorient TVET towards sustainable development. The multi-stakeholder approach to whole-system change is particularly evident in the reorientation of TVET. In order to prepare youth and adults to work in new and reoriented enterprises that support sustainable development and greener economies, there must be an alignment of interests and coordination between industry needs, Ministries of Education and TVET schools.

> **Box 5.4.4:** The Grenelle Round Table – A multi-stakeholder approach to TVET for SD
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> The Grenelle Round Table in France brought together businesses, government and training institutions in response to the struggle companies were facing in recruiting qualified technical staff to work in industries requiring new green skills. Working together, all sectors have contributed to the following: identifying relevant professions; defining training needs and setting up training and qualification pathways to enable professional skills to be recognized; assessing available initial training and lifelong learning to create a reference system of the relevant professions and skills; recruitment and training support to help job seekers meet the requirements of the many jobs on offer; and promoting and developing an ethos of green growth.
>
> *Source:* ILO and CEDEFOP (2010, p. 22).

The experience during the DESD with whole-school approaches also provides insight on how multi-stakeholder social interaction can influence system change at a number of levels. Individual teachers, pupils, administrators, parents and members of community organizations all learn from engaging in whole-school transformation towards sustainability. At the same time the school, as an organization, is also learning as it becomes more responsive to community relationships and more capable of linking the school's operations to the curriculum. Finally, the whole-system of education, learning and community engagement is also changing as the interactions between all actors, between school and community, between curriculum and school greening, are reconfigured to be mutually reinforcing (Hargreaves, 2008).

The success of collaborative approaches still needs to be measured

So much of the DESD's accomplishments have been achieved through networks and partnerships, and yet UN and other stakeholders note these efforts were often limited by their own capacity to work in collaboration with each other and with partners on the ground. While general agreements to collaborate through partnerships may have been secured, experts interviewed for the GME report have suggested that capacities and resources of local-level partners were often not adequate to support their effective participation, including their ability to use or disseminate the ESD content provided by UN and other partners, or engage local-level stakeholders in systems change. As the former Yugoslav Republic of Macedonia points out, this lack of ability to secure the 'active participation of the stakeholders (business sector, NGO, media, local self-government)' (GME Q The former Yugoslav Republic of Macedonia, MS) has been among the many challenges noted by Member States.

> **Box 5.4.5:** SADC REEP – Linking policy and practice for SD
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> The Southern Africa Development Community Regional Environmental Education Programme (SADC REEP) demonstrates how a multi-stakeholder education partnership can be designed to address shared sustainability challenges across a region. SADC REEP was mandated to find learning-based responses to the key sustainability issues of southern Africa (e.g. natural resources management, food security, poverty, climate change and waste management). The programme has involved stakeholder groups from the 15 SADC Member States, ranging from policy-makers, academic researchers, educators, and curriculum developers, to business entrepreneurs. An external evaluation (2012) of SADC REEP covering its 15 years of EE and ESD work in southern Africa found that a multi-stakeholder process that involves all education stakeholders contributes to: stronger linkages between policy and practice; learning and action networks within and between the region and the international community; and research and innovation in ESD processes.
>
> *Source:* Mukute et al. (2012).

Despite a growing body of examples that suggest that multi-stakeholder processes can have significant influence on ESD policy and practice where engagement is successful and capacity to participate is present, evidence of the factors necessary for the success and impact of ESD partnerships is still limited. The Wuppertal Institute for Climate, Environment and Energy is currently involved in a multi-year programme of research on the Institutionalization of Education for Sustainable Development by Networking – an Empirical Analysis of Learning Partnerships between Schools and Enterprises (2011 – 2014). Wuppertal has rightly identified that, while the role of networks and partnerships for spreading and institutionalizing ESD has been highlighted during the DESD, only a few theoretical and empirical research initiatives about the effectiveness of such networks exist. The project is currently analyzing how networks for ESD emerge, how they become successful and how much potential for the transfer of ESD they can offer (Wuppertal Institute for Climate, Environment and Energy, 2014). The work by the Wuppertal Institute on success factors for ESD

partnerships and the effectiveness of partnerships in the promotion and adoption of ESD will be particularly important in the post-DESD processes (Wuppertal Institute for Climate, Environment and Energy, 2014).

Social learning processes enhancing multi-stakeholder activities

Our understanding of the process of multi-stakeholder, social learning is still growing, but we may find that social learning is both an essential input to the success of multi-stakeholder approaches and an important outcome as well. It is in the context of multi-stakeholder social learning that people learn from each other and collectively become more innovative and more resilient. They also become more capable of finding solutions, withstanding setbacks, of dealing with insecurity, complexity and risks. These learning processes help to fine-tune current actions (optimization and improved efficiency) or rethink those actions altogether (system redesign and transitions) (Peter and Wals, 2013). In addition to facilitating innovative outcomes on immediate challenges, social learning also builds the skills for addressing other challenges in the future. As a stakeholder from Hungary suggests, 'The promotion of interdisciplinary, multi-stakeholder, participatory learning that encourages critical thinking, dialogue, tolerance, and which leads to development of skills, proactive citizen behaviour and values on sustainable development is a must' (GME Q Regional Environmental Center for Central and Eastern Europe, KS).

The online environment for networking and partnerships has greatly extended interactions and allowed networks to form around common policy concerns with much greater speed, extending the ability to reach multiple stakeholder groups and to promote social learning. Stakeholders who may not have been able to interact in the past can now add their voices with relative ease and increase the reach, richness and potential effectiveness of the debate (UNESCO, 2012a). Most recently, the online involvement of multi-stakeholder groups in the Rio+20 and post-2015 debates are good examples of policy development through ICT-supported social learning for sustainable development.

Those who work in the field of ICT4D (information and communications technologies for development) and WSIS action lines (World Summit for the Information Society) have extensive knowledge of the deployment of ICT tools to enhance participation in policy setting and governance. Their experiences show that online, social media-based mechanisms can be powerful in mobilizing groups and voices from around the globe. However, issues of inclusion, trust, participation and the identification of tangible outcomes resulting from the interaction are as prevalent in the online environment as are they are in face-to-face, group interactions (Willard, 2009; Creech, 2012; Booth, 2012). Good practice in the use of online multi-stakeholder consultation and engagement should also be explored by the ESD community as part of strengthening partnership practices.

Implications for future actions

An analysis of major lessons learned by Member States reveals that nearly half (43%) of respondents found there was a need to secure the engagement of many actors for the effective implementation of ESD. It will be critical to the future of ESD to further develop, operationalize and enhance local, national and global partnerships and networks that facilitate multi-stakeholder learning and implementation for sustainable development.

Box 5.4.6: Suggested actions

➤ **Promote and reinforce the continuation of National Coordination groups.** Having a central coordinating body at the national level that can ensure the collaboration of all stakeholders and oversee a coherent ESD strategy will continue to be important for effective ESD implementation in the post-DESD period.

➤ **Strengthen understanding of the roles of stakeholder groups.** Lessons should be derived from the wealth of examples of the contributions during the DESD that the many stakeholders have made to ESD – in particular, private sector and civil society contributions to schools and communities – in order to better understand and strengthen shared roles and responsibilities in ESD among all stakeholders.

➤ **Undertake research into the operational mechanics of networking and partnerships in ESD.** While much has been written about the practice of networking in sustainable development policy arenas, an exploration of these practices in ESD would help to transfer lessons and ensure that the full benefits of collaboration are being achieved in support of broader sustainability goals. Further research is also needed on the process of multi-stakeholder social learning, with innovative methodologies to capture the learning taking place at the various levels, and to get a better sense of how this learning is contributing to sustainability.

➤ **Build capacity for working in partnership and facilitating multi-stakeholder, social learning.** Educators and trainers play an important role in catalyzing, linking and mediating interaction within multi-stakeholder mechanisms. Capacity-building for the facilitation of learning through partnerships, including how to manage these processes in online environments, as well as the creation of adequate monitoring and evaluation strategies and tools, will be essential in the years to come.

An adequate response to sustainability challenges cannot be limited to single perspectives, disciplines or ways of knowing. Multi-stakeholder approaches are proving to be important in building bridges among different groups in society, helping to advance ESD and reorient education systems. In the years to follow the DESD, these mechanisms can contribute to social learning, helping institutions and citizens deal with complexity, controversy and uncertainty, while at the same time empowering and equipping them with the capacities to sustain the well-being of the planet.
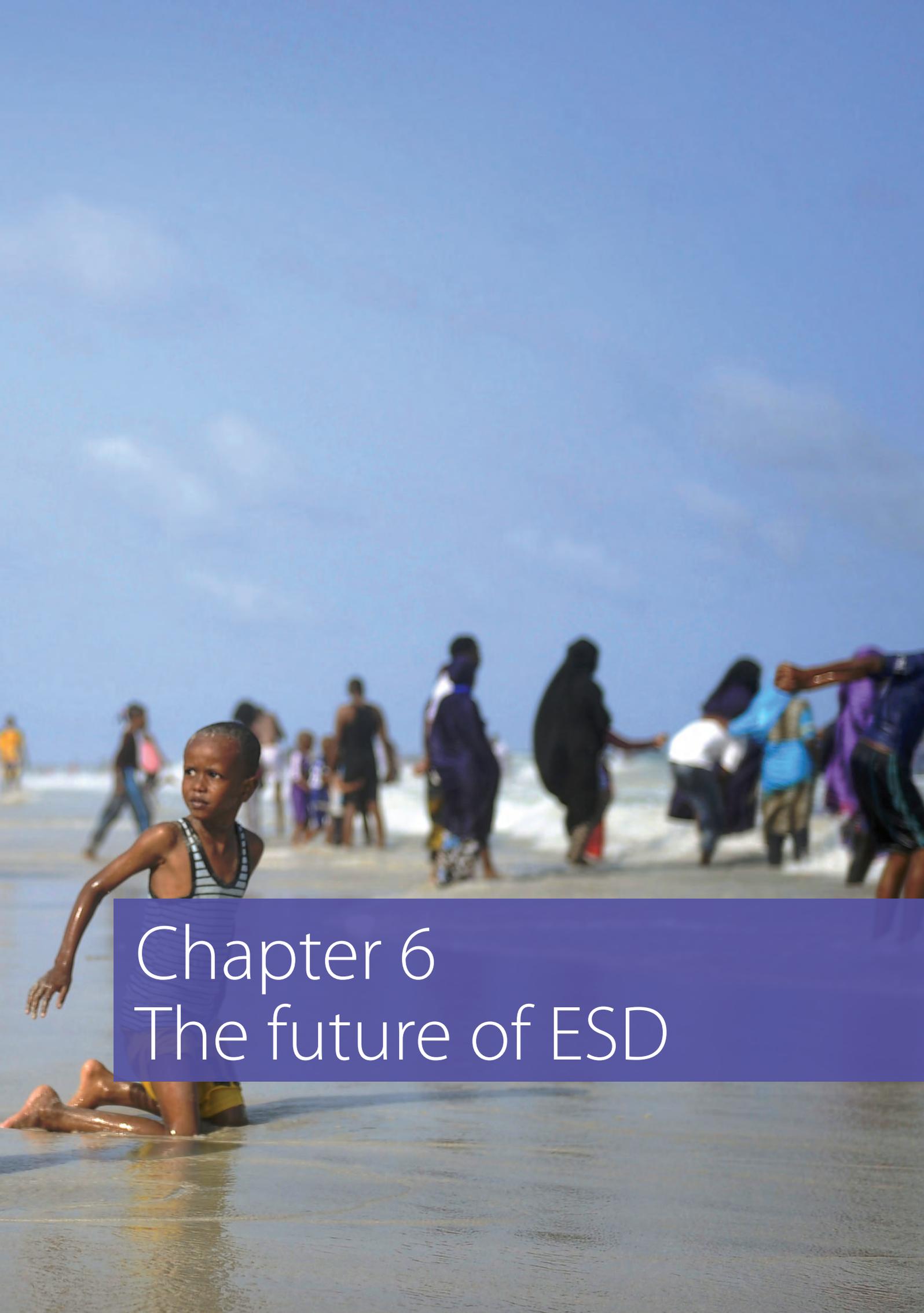
Chapter 6
The future of ESD

Chapter 6: The future of ESD

6.1. Scaling up action

> Our main lesson learned is that ESD can help make the earth a better place to live.
>
> — (GME Q Lebanon, KS)

With the growing endorsement of education, including ESD, as an essential component of the global post-2015 agenda, there is now the potential for the education sector to work even more closely with the sustainable development community to prepare citizens to build sustainable, respectful societies. Sustainability requires the reorientation of education beyond a narrower preparation for economic life towards education for well-being and a more sustainable economy, ecology and society. At the end of the DESD, and at the beginning of the Global Action Programme for ESD, a comprehensive alignment of interests and actions is now possible with the potential to accelerate, scale up and deepen the transformation of education to make it relevant to today's world.

The call for ESD is coming now from multiple levels: Member States have committed to ESD as an outcome of Rio+20 and have put forward a goal on education in the Outcome Document of the SDGs. Business leaders also feel strongly that the post-2015 agenda needs to address education as a pathway to prepare the next generation of citizens, employees and entrepreneurs for the future, with a full understanding of sustainable development (UNGC, 2013b, p. 8). However, at the national level, more work will be required to move from commitments to ESD to the increase in implementation of ESD as a priority for Member States[1].

Throughout the DESD, there has been a widespread government, stakeholder and UN agency response – from global to local levels. But while much has been done to advance ESD, progress is uneven and most Member States emphasize that more work is needed for full implementation. While many now recognize that ESD principles lie at the core of the purpose of education, a full transformation of education systems has yet to take place. Future efforts will need to be focused on the integration of sustainable development throughout education systems, not simply as an add-on to existing approaches. Central to this transformation will be building the critical mass of educators, school leaders and policy-makers to increase and move educational practice in the direction of ESD.

Lessons from research, consultations, piloting of materials, demonstration projects, and capacity-building workshops will need to be transferred into ESD policy and practice on a much wider scale. However, the complexity of scaling up and replicating success should not be underestimated. Efforts to advance ESD will need to be contextualized: what works in scaling up ESD across a local school district in Kenya, for example, may be quite different from what will be needed to scale up TVET systems across Europe. There might be cases where initiatives work best because they are very local in context and only manageable as small interventions.

Discussions of 'scale up' and 'replication' in international development remind us that 'scaling up' requires political and institutional enabling conditions. These include: access to financial, technical and political support (Alvord et al., 2002); supportive policy, legal and regulatory frameworks and better policy coordination (Basu and Srivastava, 2005);

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1   Based on key informant interviews and correspondence with UNESCO, 30 January 2014.

as well as a range of capacities including detailed planning, good systems for sharing and spreading knowledge, and incentives for stakeholders (Binswanger and Aiyar, 2003; Mansuri and Rao, 2004, in Creech, 2008).

In today's complex and interdependent world, efforts to scale up ESD will need to consider how to plan collectively for impact. Building on the growing understanding of multi-stakeholder partnerships in ESD, the emphasis should now be on achieving 'collective impact' through structured processes, with assigned roles and aligned and mutually reinforcing actions among the actors, shared performance measurement frameworks and continuous coordination and communications (Kania and Kramer, 2011).

This suggests that in the coming years the Global Action Programme (GAP) will need to consider how to sustain and increase political support for ESD and how to expand the necessary capacity for policy development, coordination and collective impact planning. Particular attention will also be needed for systems to track and support the documentation of lessons and processes for wide-scale sharing of knowledge among stakeholders about what is working in different countries. **Central to scaling up is knowledge diffusion – 'the ability to develop transferable ideas that take into account national and local contexts and capacities'** (GNNCSDS, 2013). Without the political support, policy and collective planning, as well as supporting knowledge systems, implementation at scale could be fragmented and slower to achieve.

Member States in every region are greatly encouraged by the momentum that the DESD has created and believe that the DESD has established a solid path to continue this crucial work over the long term. In particular, Member States see the need for continuing efforts and are committed to a new programme of work under the GAP. As Namibia affirms: 'We are very optimistic regarding the future development in the area of ESD and different stakeholders are working hard to achieve this mission' (GME Q Namibia, MS). Uruguay intends to 'embrace the arrival of a new decade working in this arena, with our local interpretation of ESD, to foster a better quality of life to every citizen of our country' (GME Q Uruguay, MS) and Mongolia 'fully supports the continuation of the path after 2014 for global action on ESD; it will witness that through education which is the key to all, we can make difference!' (GME Q Mongolia, MS).

The DESD has succeeded in raising levels of awareness of ESD and has strengthened stakeholders' understanding through pilot projects, capacity-building efforts and partnerships and networks. This has led to the application of lessons learned and changes in policy and practice. However, although this foundation of commitment, knowledge and good practice is in place, Member States like Chile, Latvia and others acknowledge that more than a decade will be needed to build full awareness of ESD (GME Q Chile, MS) and to operationalize the reorientation of education systems (GME Q Latvia, MS).

> Although the work done has already reached ten years, there is still the need to continue this effort, to stimulate best practices and to promote more productive and positive cooperation projects in this field.
>
> – GME Q Portugal, MS

Recognizing the need to sustain momentum on ESD, UNESCO Member States have endorsed the GAP, with a first phase of five years for continued work on ESD. The GAP will be launched at the UNESCO World Conference on ESD in November 2014, in Aichi-Nagoya, Japan.

Based on consultations with Member States and guided by the findings of the DESD M&E reports, Five Priority Action Areas in the GAP have been identified in order to:

- strengthen education in sustainable development policy and sustainable development in education policy;
- transform learning and training environments;
- build capacity of educators and trainers;
- empower and mobilize youth; and
- accelerate sustainable solutions at the local level.

The lessons learned and challenges identified throughout the final GME report have informed the proposed suggested actions – to be found throughout this report – for advancing ESD policy and practice. These suggested actions have been included below within each of the relevant priorities of the GAP.

Priority area one: Advancing policy

Policy coherence is crucial for bringing about systemic change towards sustainable development. At the global level, policy-makers should sustain the DESD's momentum on ESD and secure an alignment with global goals for sustainable development. At the regional level, engagement with regional agencies, and the development of regionally and subregionally-focused programmes should be enhanced. This will reinforce global ESD frameworks and ensure that they are adaptable to regional and subregional contexts.

At the national level, embedding ESD within the core institutional structures of education systems will be important to meet existing and emerging SD challenges. The fostering of policy coherence between national SD objectives and the education system should be supported with strengthened interdepartmental coordination mechanisms and the reinforcement of political support for the reorientation of systems. This will be particularly important in TVET, as a reorientation will be needed to address the demand for the skills and capacities to build greener economies. As well, disaster risk reduction, climate change, biodiversity, sustainable consumption and production national plans and strategies should also reflect ESD as a means of implementation.

Other levels of education have unique policy challenges that must also be addressed. These include the following: the strengthening of quality delivery of ECCE that recognizes ECCE as the foundation for sustainable development; flexibility in curriculum policy that would allow primary and secondary schools to develop content and projects that are locally relevant; the complex coordination of change towards ESD in higher education, involving higher education leaders, national higher education authorities, private sector interests and students; and the provision of adult learning and non-formal education opportunities in alignment with sustainable development. **Ongoing attention will also be needed for the capacity-building of policy-makers to develop and implement a range of policy instruments, from mandated approaches (laws, standards, directives) to soft policy pathways that engage, inform and support stakeholders**. In particular, in developing countries, policy instruments such as funding, infrastructure development and capacity support will be necessary to strengthen education systems in support of sustainable development.

The institutionalizing of ESD will require strong political leadership and the creation of the enabling environment for ESD through policy change. It will also require the investment of staff and financial resources to implement and sustain change.

Priority area two: Transforming learning and training environments

Formal education

Across all levels and types of education, curriculum change should be further advanced, entailing more ESD-relevant content and learning practices. Schools, TVET and HEIs must move beyond the provision of individual courses and specialist training to ensure that all students have the knowledge, attitudes and capacity to respond to the challenge of sustainability throughout their professional and personal lives.

Whole-institution approaches, which require ECCE facilities, schools, TVET and higher education institutions to plan and take action towards sustainable development, show great promise for instilling not only knowledge but fundamental perspectives and attitudes for learning to live and work sustainably. Student participation will be essential in scaling up whole-institution approaches, as these are proving to be highly effective methods to make sustainability issues a part of students' everyday experience. Research, documentation and sharing of experience will be essential to strengthen whole-institutional approaches for ESD, particularly for ECCE, primary-secondary education and TVET. The higher education community is making incremental advances in addressing sustainability in curricula, teaching, research, operations and community relations – and sharing those lessons through various reporting

mechanisms. However, **achieving a 'whole-institution' approach will require leadership and peer learning across institutions to maintain momentum**.

Non-formal, public awareness and training

In the world of work, whether in the public or private sectors, efforts are needed to promote a culture of and principles of sustainability as a lifelong learning endeavour that will continue beyond formal education into daily working lives. Such a culture is beginning to emerge in the private sector. Here, the learning environment is increasingly focused on short courses and workplace training, together with peer learning events. In this context, business and industry (and no doubt the public sector as well) are now looking for more technical education and training for implementation of sustainability-related practices, such as low carbon design, full cost accounting and sustainability reporting. The skill set also needs to include critical analysis and decision-making skills that will help managers deal with complexity and change. **More attention is needed to the crafting of (a) learning that supports a lifelong practice of sustainability in the workplace and (b) learning that meets the needs of the private and public sectors for highly targeted ESD knowledge and skills.** More attention is also needed to support small-, micro- and medium-sized enterprises in strengthening their sustainability skills base at the local level.

Priority area three: Building capacities of educators and trainers

In all areas of education – from ECCE through to higher education and workplace training – there is a need to help educators determine how to incorporate ESD into teaching and learning activities. In ECCE, parents and caregivers, in their shared role as educators, should be further supported to help children discover and shape a more sustainable world. In formal education, ESD programme implementation will require a better understanding of ESD competencies, the enhancement of capacities among curriculum developers, school leaders and teachers, and mechanisms to support knowledge sharing among educators and trainers at all levels. **Special attention should be given to teacher training institutions, in order to institutionalize ESD in policy, coursework, degree programmes, accreditation and certification standards**. In non-formal contexts, trainers working in the private sector will benefit from rigorous content and quality standards for the training programmes they are delivering. These will need to follow a continuum of needs, from general introductions to sustainability practices and corporate social responsibility, through to specific technical requirements related to labelling and certification schemes, energy efficiency, triple bottom-line accounting, as well as many others.

Priority area four: Empowering and mobilizing youth

Lessons from ECCE remind us that even the youngest of children can play a role in influencing their communities based on their learning. Programmes in ECCE, primary and secondary education, TVET and higher education that recognize youth as agents of change and stakeholders in their own future should be advanced. **Holistic approaches that are embedded in community learning and giving back to the community show great promise for all levels of education.**

Students in higher education are beginning to seek out sustainable development not only as a course of study, but as something that should be practiced in the operations of their college/university. More engagement with student groups is necessary, working with them on the transformation of higher education systems.

Young people who have not had the benefit of, or are no longer in, the formal education system should also be acknowledged, engaged and empowered through non-formal and informal education processes that will support their full involvement in building more sustainable societies.

Priority area five: Accelerating sustainable solutions at the local level

Capacity-building for local school system leaders and administrators will help to anchor ESD in local contexts. Local municipal authorities should be encouraged to work directly with local schools and higher education institutions, involving students in finding local sustainability solutions. For this to happen, more research into the mechanics and effectiveness of school-community and university-community engagement will be needed. **Training and public awareness for sustainability at the local municipality level will help local authorities to increase staff capacity and engage citizens more comprehensively in local actions**.

Together with governments, CSOs play an important role in supporting formal education through non-formal activities, and through raising public awareness at the local level. The role of CSOs and other partners at the local level should be recognized, with their support secured through planned multi-stakeholder collaborations that focus on local impact. Another major leverage point in accelerating local-level sustainability will be the training of media practitioners in the coverage of sustainable development issues in order to inform the general public of challenges, opportunities and solutions at the local level.

6.2. Measuring future progress

The tendency during the DESD has been to measure inputs, such as the development of strategies, plans, coordinating mechanisms and resources, as well as intermediate outcomes, such as changes in policy and curricula. Whether these have led to the desired changes in learning attainments or whether learners are now contributing to the sustainability of communities and nations has been difficult to assess. The M&E of efforts that assess the outcomes of ESD and of efforts that seek to reorient education systems remains at the end of the DESD, one of the most persistent challenges still to be addressed.

It is recognized that M&E frameworks are particularly difficult because they need to be contextualized. Member States interpret ESD in different ways and are at different stages in progress and implementation. Also, the sustainability challenges facing each country will vary, which means that the need for specific knowledge and skills to serve those national priorities will also vary. Part of the challenge here is the need for a much improved understanding of ESD competencies, (i.e. what levels of knowledge and skills are to be attained through ESD).

The wide-ranging experiences of those working on ESD M&E suggest that there may be a need to assess ESD programmes and initiatives at multiple levels. Approaches include: large-scale assessments for learning outcomes; national assessments more aligned with national educational priorities; contextualized school and institutional assessments to improve implementation and delivery; and finally the development of formative assessment practices to empower teachers to gauge specific pedagogical practices in classrooms.

Given that mechanisms for M&E are already part of international, national, provincial and local education systems, some consideration might be given to strengthening ESD into existing M&E systems, such as large-scale student assessments, to ensure a more comprehensive picture of ESD learning attainments. PISA, for example, in 2006 incorporated the environmental aspects of ESD; and progress is already taking place with the International Civic and Citizenship Education Study (ICCS) broadening its focus on citizenship to include dimensions of the environment. The contribution that these assessments are making to understanding learning outcomes is important, and is discussed further in the Primary and Secondary Education Section. A series of cross-studies over time that track youth from various regions/countries as they begin to learn about sustainability, and whether and how this shapes their lives and their contributions to the world they live in, will also be important to help measure the progress of ESD.

The engagement of M&E practitioners from both the education and sustainable development domains will also be needed to develop robust GAP frameworks and processes for M&E. More research, knowledge capture and knowledge sharing is needed, together with an adaptive approach that refines process and indicators as feedback is received from pilot evaluation projects. Going forward, it will also be important to include an assessment of the outcomes of integrating education into national sustainability policies.

6.3. Concluding thoughts on the DESD

By the end of 2014, the greatest achievements reported by Member States have been the establishment of ESD policies, the reorientation of curricula in many areas and levels of education, and in the deployment of new approaches to learning. ESD frameworks and tools have been tested, partnerships and networks have been established, materials prepared, and capacities developed. Through 10 years of dedication, all stakeholders, working together, have laid a strong foundation to advance sustainable development through education and learning.

Clearly, much has been achieved through the DESD; however, much more work remains to be done. Scaling up these efforts will require one of the most important success factors identified during the DESD, that of leadership. Put simply, leadership within and across education systems will be essential to sustain efforts and ensure ESD objectives are adopted and put into action. This means leadership at the global, regional, national and local level will be needed to create the organizational climate necessary for change, to put the resources in place to secure change and to provide encouragement for all actors to experiment, take risks, learn and adapt in order to move societies towards sustainability. In addition, champions will still be needed, both institutional and individual, to bring together stakeholders in collaborative actions and to sustain efforts in the coming years. Finally, all efforts should be grounded in evidence that reorienting education, training and public awareness towards sustainable development will indeed contribute to achieving societal goals for sustainability.

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Shaping the Future We Want

UN Decade of Education for Sustainable Development (2005-2014) FINAL REPORT

Achieving a path to sustainable development is as significant as ever. There is a growing consensus that countries not only need to change policies and technologies, but also ensure that their citizens are equipped with the knowledge, skills and values to make choices that will support living and working sustainably. Education can – and must – play a decisive role in the journey towards sustainable development.

The **2014 Global Monitoring and Evaluation Report**, *Shaping the Future We Want – UN Decade of Education for Sustainable Development (2005-2014)* focuses on the outcomes of 10 years of work around the world to advance education as a critical tool for moving societies towards sustainability. It also provides insights on the impact of the call for a UN Decade of Education for Sustainable Development (DESD) on all levels and areas of education, and it charts the major lessons that will inform future work. At the end of the DESD, a solid foundation has been laid for Education for Sustainable Development achieved by raising awareness, influencing policies and generating significant numbers of good practice projects in all areas and levels of education and learning.

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