

# Are We Learning to Change?

## Mapping Global Progress in Education for Sustainable Development in the Lead Up to ‘Rio Plus 20’

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### Abstract

As the world prepares for ‘Rio plus 20,’ questions are being asked regarding the role and impact of education in the attainment of a more sustainable future. Chapter 36 of Agenda 21, a key contribution of the 1992 Rio Earth Summit, consolidated arguments that education is critical to the achievement of sustainable development. It called for action to improve learning opportunities across the globe which challenge unsustainable practices and promote a better quality of life for all.

Since then, efforts have gathered pace internationally and have culminated in a United Nations Decade of Education for Sustainable Development (DESD 2005-2014). National strategies, multi-stakeholder partnerships, international collaboration and local to regional initiatives have provided exemplars of how learning and education can contribute to a more positive future. Questions are now being asked about the extent to which these practices have been mainstreamed across education systems and opportunities; and, about how we know that these education efforts are making a difference. UNESCO, in particular, is seeking to monitor strategies, processes of learning and outcomes of education for sustainable development. This article reviews international efforts undertaken as part of the UN DESD to map global progress in education for sustainable development and asks the question, “are we learning to change our education systems and practices?”

**Key words:** Education for Sustainable Development, monitoring and evaluation, progress, Rio Plus 10, UN DESD, UNESCO

## 1. Introduction

The year 2012 marks the 20th anniversary of the UN Rio Conference on Environment and Development often referred to as the ‘Earth Summit.’ The 1992 Summit resulted in a number of critical international agreements on climate change, biodiversity and desertification, as well as an overarching roadmap – ‘Agenda 21.’ Collectively, these landmark documents set the stage for global action towards sustainable development.

Chapter 36 of Agenda 21 consolidated arguments that education is critical to the achievement of sustainable development and identified core strategies to improve learning opportunities in this area. These strategies which are to be implemented by governments, international agencies, businesses and civil society groups sought to improve access and quality of learning for sustainability and reorient education systems to support more sustainable futures. Agenda 21 was seminal in that it provided a

basis for international collaboration as well as a case for investment in learning for change. At the time, many in government and NGO bodies, as Smyth (1999) recalls, were committed to the call for education for sustainable development but misunderstood the role and process of education expecting it to produce rapid changes in public behaviour as a result of rising awareness.

Following the Earth Summit, the Commission on Sustainable Development appointed UNESCO to be its Task Manager for Chapter 36. UNESCO’s roles were to accelerate reforms of education and coordinate the activities of all stakeholders in education through a wide-ranging work programme whose objectives included: clarifying the concept and key messages of education for sustainable development; incorporating education into national strategic and action plans for sustainable development; educating to promote sustainable consumption and production patterns; and: identifying and sharing innovative practices. These objectives

still underpin UNESCO programmes and have been reflected in the more recent strategies underpinning the UN Decade of Education for Sustainable Development.

Ten years after Rio, a gathering of international leaders and stakeholders took place in Johannesburg to review progress. This World Summit on Sustainable Development generated a Johannesburg Plan of Implementation and reminded the world of the role of education and learning in the attainment of sustainable development. It re-energised efforts to reorient education systems towards sustainable development and consolidated arguments that learning for sustainable development needed to be more a holistic, futures-oriented and systemic process. The concepts and terminology associated with education had shifted: dialogues associated with behaviour change and issue-based learning were overtaken by discourses seeking to transform mindsets and lifestyles for better long-term prospects (Birney, 2002; Paden, 2002; Tilbury and Wortman, 2004). Envisioning, scenario planning or what is often referred to as 'futures thinking' had emerged as a core principle of education for sustainability and continues to be a cornerstone of this area of learning as confirmed by the recent UNECE competences framework for educators (2010).

Another key legacy of the Johannesburg Summit was a recommendation to the United Nations General Assembly (GA) which led to the adoption of resolution UN GA 57/254 and thus the establishment of a United Nations Decade of Education for Sustainable Development (DESD, 2005-2014). The DESD was to support, what the New Zealand Parliamentary Commissioner for the Environment (2004) termed as a 'See Change' – a process which helped learners and educators to envision and enact a more sustainable future.

## 2. A UN Decade in Education for Sustainable Development

Spanning 2005 to 2014, the DESD is a global platform which seeks to embed sustainable development into all learning spheres; reorient education and develop initiatives that can showcase the special role of education for sustainable development (Elias, 2006). In 2005, UNESCO up-scaled its responsibility and efforts in these areas when it became the official international lead agency for the DESD and set in place a series of mechanisms to guide the Decade.

Early on, UNESCO released an International Implementation Scheme for the DESD (UNESCO, 2004; 2005a) as well as an Action Plan for its own contribution to the Decade (UNESCO, 2005b). This was accompanied by the establishment of a UN DESD Secretariat with a global coordination role, a High-Level Panel to provide guidance and advice to UNESCO on the DESD, a UNESCO Reference Group on the DESD to assist on implementing the DESD strategies, a Monitoring and Evaluation Expert Group (MEEG) to advise on DESD reporting progress and an Inter-Agency Committee to ensure harmonious international coordination (UNESCO,

2007). The DESD advisory panels have an important role to play in providing clarity and direction on DESD strategies and advice on how best to engage communities of practice which have yet to engage with this agenda (Mula & Tilbury, 2009).

The arrival of the DESD in 2005 was marked by a series of high-profile launches which served to raise awareness about the Decade's objectives. Despite notable critiques (González-Gaudiano, 2005; Gutiérrez & Pozo, 2005; Sauv   & Berryman, 2005; Jickling, 2006), many stakeholders from across the globe joined the celebrations expressing their support for the DESD and acknowledging the opportunities the DESD presents to influence government decisions and moves towards more systemic change (Paden, 2007; Tilbury, 2007). The reality, however, is one where the UN resolution encourages all governments to implement the DESD in their countries (UN, 2005) and relies on voluntary responses resulting in varying levels of commitment. At the Decade's mid-point it became clear that its international profile and activity owes much to the governments of Canada, the Netherlands and Germany but especially Sweden and Japan, which have supported the DESD in principle as well as financially. Indeed, the status and contribution of the DESD in the coming years could be significantly undermined if this government support were to be influenced negatively by the recent economic crisis and public sector cuts dominating headlines in these donor countries.

## 3. Mapping Global Progress

The International Implementation Scheme paved the way for the DESD by setting the major thrusts of education for sustainable development as well as global milestones for the ten year period. The Scheme identifies monitoring and evaluation as part of the implementation strategy and recommends the development of indicators at all levels. UNESCO, as the lead agency, has the responsibility of establishing mechanisms for monitoring and evaluation as well as for reporting on progress to the UN General Assembly in 2010 and 2015 and the UNESCO Executive Board at the end of each biennium.

This commitment led UNESCO to establish the Monitoring and Evaluation Expert Group (MEEG) in 2007 to advise on appropriate monitoring mechanisms for assessing (i) global progress in the implementation of the DESD and (ii) to assess UNESCO's own contribution to the implementation of the DESD. The MEEG built upon the experiences of developing monitoring systems and indicators for education for sustainable development at the regional level (UNECE, 2005; Tilbury *et al.*, 2007). It recommended that UNESCO publish three global implementation reports during the course of the Decade:

- in 2009 focusing on the context and structures of work on ESD in member states (Phase I),
- in 2011 focusing on processes and learning initiatives related to ESD (Phase II), and
- in 2015 focusing on impacts and outcomes of the

DESD (Phase III).

### **Phase I**

In 2007, a Global Monitoring and Evaluation Framework (GMEF) was developed for Phase I which brought together a number of data collection and triangulation processes to assist with the validation of findings. It outlined a complex and ambitious endeavor which had never been undertaken previously at a global level. The GMEF created opportunities for mapping national as well as regional developments in contexts and structures for education for sustainable development. Due to the lack of resources and tight timelines, it relied heavily on voluntary contributions and meta-analysis provided by key regional and national groups and on expert opinion rather than empirical analysis. Much of this input was collected from survey responses and regional reports. It acknowledged the important contributions of stakeholder groups such as IUCN, WBCSD, Earth Charter and the UN Education Caucus and provided them with an opportunity to contribute directly to the data collection and comment on the preliminary analysis of the data.

A draft of the first global monitoring and evaluation report was presented to stakeholders at the UN Conference on Education for Sustainable Development which took place in Bonn at the end of April 2009. The conference dialogues and participant feedback also contributed to the validation process. At Bonn, the weaknesses of the report (resulting from the lack of depth and length of the monitoring process) were acknowledged but also the overwhelming support from stakeholders for a global report despite its limitations. The report gave an indication of where progress was being made and where greater investment of time and resources was required.

The final report was published in October 2009. The report's findings highlighted:

- i) *the numerous opportunities which exist for regional, national and local communities to generate an understanding of ESD within their own context.* This dialogue is seen as crucial to arrive at a consensus over the meaning of education for sustainable development (Bory-Adams, 2010) especially in countries where environmental education is deeply rooted.
- ii) *that UN agencies should strive for a 'one concerted UN response' to ESD.* The report noted that there are limited interagency initiatives or alignment of learning experiences with core DESD goals.
- iii) *the rise of national coordinating bodies.* Of the 97 countries that responded to the Phase I survey, 79 report that a national ESD coordinating body has been created. The author of the global report, recognises the rapid rise of the coordinating bodies but warns more insight is needed into the processes leading up to their creation and the roles they play in practice (UNESCO, 2009a).
- iv) *a notable presence of education for sustainable development in national policy documents.* However, it appears that most countries do not yet have a spe-

cific national policy or strategy in education for sustainable development. UNESCO (2009a) also noted that in most parts of the world, a structure for interdepartmental governmental cooperation for this area of learning is still lacking as there is little experience in cross-boundary thinking among policy-makers and governmental departmental structures.

Various issues plagued the process of preparing the first global report. Delays in donor funding led to delays in the commencement of the process; lack of capacity at UNESCO regional and cluster offices to fully participate or engage stakeholders in the process resulted in restricted access to important data; the non-alignment of the UN DESD monitoring and evaluation process with the UNECE ESD reporting process led to a lack of submissions from the UNECE region. In addition, the limitation on resources did not permit longitudinal studies, planned to commence in Phase I, to form part of the monitoring and evaluation process. The MEEG recognised that these challenges would persist in the next phase and advised that the design of the GMEF for Phase II should seek ways of overcoming these barriers.

### **Phase II**

To prepare the 2011 report, and in keeping with previous experience of Phase I, UNESCO commissioned a Phase II framework. The GMEF for Phase II builds upon the data as well as lessons learnt from Phase I. It shares common goals with the Phase I global monitoring and evaluation process. These include raising awareness amongst stakeholders about the DESD; providing opportunities for reflection and learning; monitoring progress across a range of sectors (*e.g.*, formal education, community, government, business); assessing changes (in processes and learning at Phase II); providing a regional as well as a global map of progress; and assessing the contribution of UNESCO to the DESD and the lessons learnt in the process of implementation.

The 2011 report is to focus on processes and learning in ESD. Often learning is interpreted as the gaining of knowledge, values and theories related to sustainable development but in ESD it also refers to learning to think in different ways; learning to ask critical questions; learning to clarify one's own values; learning to think systemically; learning to work with others to solve problems and address issues. The term 'processes' in this context, refers to engagement opportunities, pedagogical approaches or teaching and learning styles adopted to implement ESD in different levels and settings of education. 'Learning' for ESD refers to what has been learnt and is learned by those engaged in ESD, including learners, facilitators, coordinators as well as funders.

The MEEG, at its November 2009 meeting defined the objectives of Phase II of the DESD M&E process as: "1. *Clarification:* To clarify which learning processes should be promoted to facilitate learning in ESD and to identify learning opportunities (projects, pro-

- grammes or activities) in ESD that in turn promote and facilitate sustainable development;
2. *Range and Diversity*: To capture the range of levels and settings of education (formal, non-formal and informal), where the processes and learning for ESD are taking place;
  3. *Engagement*: To identify who is involved in the processes and learning for ESD (as providers, funders, recipients and beneficiaries) and to identify how the stakeholders mentioned are involved in the processes and learning in ESD);
  4. *Intentions*: To determine what existing processes for ESD aim to achieve – whether the processes have normative aims (for example, including ESD curricula) and/or learning aims (for example, increase and enhance the awareness of ESD and capacity-building of stakeholders);
  5. *Change*: To examine (i) what has started to change; (ii) what has been learnt in the process of reorienting education systems towards ESD; (iii) whether opportunities for ESD outside of education systems have increased; and, (iv) to what extent it is contributing to advancing sustainable development specifically in the context of processes and learning.” (20 November 2009, UNESCO MEEG)

These objectives underpin the proposed framework. Other critical inputs are the recommendations enshrined in the Bonn Declaration (UNESCO 2009b) which have also been considered as guiding principles in the development of the Phase II framework; and, ‘UNESCO’s (2010) Strategy for the Second Half of the ‘DESD,’ which acknowledges the role of monitoring and evaluation. The latter also emphasises the importance of celebrating good practice as well as the need for regional capacity building in monitoring and evaluation of education for sustainable development.

The framework for Phase II thus combines participatory monitoring, documentary analysis, self-reporting, expert evaluation, key informant analysis and stakeholder validation processes to increase opportunities for engagement as well as assure representation and validity of the data. It has the following six components:

- *An Expert Review*: The purpose of this review is to address the first objective of the Phase II which seeks clarification on: i) what are commonly accepted learning processes which are aligned to education for sustainable development and should be promoted; and, ii) which learning opportunities (projects, programmes or activities) promote and facilitate sustainable development. This review was to draw from a variety of authoritative sources of literature from across the globe and would be validated by stakeholders through an on-line process. It is to inform data collection as well as evaluation assessments undertaken as part of the case study analysis.
- *ESD Portal of Experiences*: In order to capture the diversity of types, levels and settings of learning activities in education for sustainable development in

both policy and practice, an inventory or collection of experiences is to be established. Stakeholders will be invited to submit information about their programmes and activities. These data will be used to address objectives 2, 3 and 4 of Phase II outlined above.

- *Case Studies*: Case studies will be written from a series of interviews as well as documentary analysis. These case studies are to capture rich qualitative data and interrogate experiences in a way which assist the Phase II process to address deeper questions regarding processes and learning experiences (objectives 3 and 4) as well as what has started to change (required to fulfill objective 5). The experiences, captured through the ESD Portal, are to inform the selection of case studies. The case studies are to reflect the range of local, national, regional, international initiatives as well as variety of ‘content’ or themes associated with sustainable development.
- *Brief Questionnaire for Member States*: Brief questionnaires are to be devised and administered at the country level to increase awareness of the DESD and provide opportunities for self-reporting as well as reflection on national progress. Questionnaire respondents will be asked to engage a range of national stakeholders actively in collecting data and responses. The focus of this data capture method is on documenting what has changed (specifically in structures and contexts) since the last reporting period and to begin to assess what influence or impact these structures and contexts are having on processes and learning. National Commissions and agencies will be asked to reflect on what has been learnt in the process of implementing ESD since the start of the DESD. These data will contribute to objective 5 of Phase II.
- *Key Informant Analysis*: This will have two strands:
  - i) The first strand involves key regional stakeholders convened by the UNESCO Regional or Cluster Offices to reflect on regional trends and experiences as well as identifying what has started to change and how this has contributed to advancing sustainable development.
  - ii) The second strand engages key international stakeholders groups in reflecting upon global trends and experiences in relation to processes and learning across a variety of sectors. The international group will be convened by the DESD Secretariat. These key informant groups will also provide an important contribution to identifying ‘what has begun to change over the last 5 years,’ ‘what has been learnt in the process of implementing ESD,’ and ‘to what extent this has assisted in advancing sustainable development.’

These strands are to provide important data for addressing objective 5 of Phase II.

*Internal Assessment of UN Agencies’ Contribution to DESD*: The DESD is a UN initiative and thus it is important to capture and reflect upon how UN agencies are contributing to the goals of the DESD. This component also has two strands:

- i) Strand 1 would engage with the UN Inter-Agency Committee for DESD in a critical self-assessment against defined criteria.
- ii) Strand 2 is more UNESCO-focused and engages with (i) the leaders of the UNESCO Intersectoral Platform based in Paris and (ii) the UNESCO Regional Offices and selected Cluster Offices in a more in-depth reflection of the contribution of UNESCO to the DESD.

A portfolio of evidence is to be established through this process which will be independently validated. A forum for sharing results of self-assessment, experiences and lessons learnt also forms part of this component.

To ensure the robustness of the GMEF it is vital that linkages be established between the components identified above in practice. The operational plan which accompanies the GMEF is designed to enable these linkages.

There will be, however, many factors which will determine whether this framework is used in a coherent way to frame the second global report. A restructuring process currently taking place at UNESCO HQ will influence the capacity available to coordinate this global and ambitious monitoring and evaluation effort. Another determinant is the willingness of member states to continue to support the global process; the recent economic downturn has resulted in new funding priorities which threaten the process of mapping progress in education for sustainable development during the DESD.

Phase I also alerted UNESCO to the lack of capacity at the regional level to undertake data collection and analysis of key trends in relation to ESD and the DESD. UNESCO HQ has invested in a regional capacity building process to accompany Phase II so that opportunities for regional stakeholder engagement are enhanced. However, early indications suggest that the capacity building workshops are having a limited impact on the ability of regions to prepare effectively for Phase II. Various reasons can be cited for this, including regional competing priorities; timing of workshops in relation to the Phase II timelines and lack of resources to support stakeholders through a lengthier process of engagement.

#### 4. Are We Learning to Change?

Phase I of the global monitoring and evaluation process identified the structures, contexts and opportunities which exist for improving quality and access to education for sustainable development. Phase II will clarify what constitutes good practice and will map the changes that are beginning to emerge as a result of education efforts in sustainable development. We await the findings of Phase III before the impact of the DESD can be genuinely assessed and can collate enough evidence to address the question *'are we learning to change our education systems and practices?'*

In the meantime, it is important to recognise that the process of data collection serves as a means of raising awareness about education for sustainable development

and building capacity of policy-makers, funders, practitioners and other stakeholders to reflect on the quality and effects of these learning processes. In other words, the monitoring process serves as a mechanism for implementing the DESD goals and engages people in a process of learning to change. It is equipping stakeholders with the opportunities and tools to reflect on what type of changes are required and how these may come about; a vital next step in the process of improving learning experiences in this area. The monitoring and evaluation effort itself, is building the capacity of educators to reorient education systems as well as their own practices so that these can make a contribution to sustainability.

Several examples can be cited to illustrate how the global mapping process is not only collecting data to address the question *'are we learning to change?'* but also encouraging learning for change itself. Recently, UNESCO released a literature review of education for sustainable development learning processes (Tilbury, 2010a) which documents the processes by which national strategies in education for sustainable development, multi-stakeholder partnerships, international collaboration and local to regional initiatives are being developed across various sectors. The review which is to inform Phase II of the global monitoring and evaluation process asked a selection of stakeholders from around the globe to reflect on what is changing and what has been learnt. It compiles a range of outputs, outcomes and impacts by education and on education for a sustainable future (Tilbury, 2010b). The next step will be to ask whether these practices have been mainstreamed across education systems and opportunities and whether these education efforts are making a difference to our quality of life and long term prospects – a key task of the national survey which is to follow as part of Phase II. Feedback for the stakeholders participating in the evaluation process suggests that the inquiry process is encouraging reflection and learning.

#### 5. The Road to 'Rio Plus 20'

The foundations for 'Rio Plus 20' are currently being negotiated. The Brazilian government's statement at the UN General Assembly in September 2007 reminded us that 'Rio plus 20' will need to address the critical issues which face our globe today as well as establish what progress has been made since 1992. Although the global issues of poverty, environmental degradation and inequality are familiar, the reality which currently faces us differs significantly from that which informed the 1992 Summit. The Group of 77 and China which tabled the resolution calling for 'Rio plus 20' endorsed this call to review progress but also the need to develop alternative strategies which have greater currency. As plans for 'Rio Plus 20' take shape, new discourses begin to emerge. The conference themes which are to be refined via the PrepCom process are likely to revolve around issues of a green economy in the context of sustainable development

and improved global security (Dodd & Strandenaes, 2010). An overall appraisal of the implementation of Agenda 21 and the Johannesburg Plan of Implementation is also expected. Seeking a review of the implementation of the Rio commitments in domestic law and a better understanding of why the previous agreements are yet to be implemented is critical.

The first preparatory meeting for 'Rio plus 20' preceded the 18th Commission on Sustainable Development (CSD18) in New York on 18-19 May 2010. PrepCom II is scheduled to take place in March 2011 and the final preparatory meeting is to occur immediately prior to the Summit in Rio. Many NGO groups as well as the UN Education Caucus are already asking questions about the 'forgotten priority' as the road to Rio unfolds.

The recent Copenhagen Summit (UNFCCC, 2009) reminded the global community that pathways towards sustainability have yet to be negotiated and agreed. This experience calls to question whether 'Rio Plus 20' will secure renewed political commitment and financial resources needed for implementation and effective monitoring of strategies for sustainable development. Strengthening global governance arrangements will need to be a key legacy of the forthcoming summit.

Educators are engaging with the process as it unfolds, and some acknowledge that the journey to Rio provides a process, as well as platform, for reorienting education towards sustainable development. Creating opportunities for policy-makers and decision-makers to reflect and learn from twenty years experience of efforts to progress commitments in this area is an important part of the process. This is where illustrations of monitoring and evaluation experiences in ESD can serve to inform agendas, sharpen strategies and help stakeholders learn to change for sustainability.

## References

- Birney, A. (2002) *Sustain[ed]: Education for Our Common Future*, 4, Stakeholder Forum, London.
- Bory-Adams, A. (2010) *The DESD Monitoring and Evaluation Process*.  
[http://www.ias.unu.edu/resource\\_centre/8.50%20WALS%20Presentation.ppt](http://www.ias.unu.edu/resource_centre/8.50%20WALS%20Presentation.ppt) (downloaded 10.10.10.)
- Dodd, F. and J.G. Strandenaes (2010) *Rio Plus 20: The Foundation for a Better Century*.  
<http://www.unep.org/civil-society/LinkClick.aspx?fileticket> (downloaded 10.10.10.)
- Elias, D. (2006) UNESCO's approach to implementing the Decade of Education for Sustainable Development (DESD) in Asia and the Pacific. *Australian Journal of Environmental Education*, 22: 273-275.
- González-Gaudiano, E. (2005). The Decade of Education for Sustainable Development: challenges and opportunities in México. *Applied Environmental Education and Communication*, 4 (3): 273-275.
- Gutiérrez, J. and M.A. Pozo (2005) Stultifera Navis: institutional tensions, conceptual chaos, and professional uncertainty at the beginning of the Decade of Education for Sustainable Development. *Policy Futures in Education*, 3 (3): 296-308.
- Jickling, B. (2006) The Decade of Education for Sustainable Development: a useful platform? or an annoying distraction? A Canadian perspective. *Australian Journal of Environmental Education*, 22 (1): 99-104.
- Mulà, I. and D. Tilbury (2009) A United Nations Decade of Education for Sustainable Development (2005-2014): what difference will it make? *Journal of Education for Sustainable Development*, 3(1): 87-97.
- Parliamentary Commissioner for the Environment (PCE) (2004) *See Change: Learning and Education for Sustainable Development*, PCE, Wellington.
- Paden, M. (2002) Engaging people in sustainability draws a crowd. *Human Nature*, 7(2): 2.
- Paden, M. (2007). Tracking progress in the UN Decade of Education for Sustainable Development. *Journal of Education for Sustainable Development*, 1 (1): 115-116.
- Sauvé, L. and T. Berryman (2005) Challenging a "closing circle": alternative research agendas for the ESD Decade. *Applied Environmental Education and Communication*, 4: 229-232.
- Smyth, J. (1999) Is there a future for education consistent with Agenda 21? *Canadian Journal of Environmental Education (CJEE)*, 4(1): 170-182.
- Tilbury, D. (2007) Monitoring and evaluation during the UN Decade of Education for Sustainable Development. *Journal of Education for Sustainable Development*, 1 (2): 239-54.
- Tilbury, D. and D. Wortman (2004) *Engaging People in Sustainability*, IUCN Commission on Education and Communication, Gland.
- Tilbury, D., S. Janousek, D. Elias and J. Bacha (2007) *Asia Pacific Guidelines for the Development of Sustainable Development Indicators*, UNESCO Asia and Pacific Regional Bureau for Education, Bangkok.
- Tilbury, D. (2010a) *Assessing ESD Experiences during the DESD: An Expert Review on Processes and Learning for ESD*, UNESCO, Paris.
- Tilbury, D. (2010b) *Tomorrow Today : Change for a Better World: Assessing the Contribution of the DESD*, Tudor Rose/UNESCO, Leicester.
- United Nations (UN) (2005) *United Nations General Assembly Resolutions*, 59/237.  
<http://daccessdds.un.org/doc/UNDOC/GEN/N04/490/48/PDF/N0449048.pdf?OpenElement> (downloaded 09.10.10.)
- United Nations Economic Commission for Europe (UNECE) (2005) *Background Paper on Development of Indicators to Measure Implementation of the UNECE Strategy for ESD*. UNECE Expert Group on Indicators for Education for Sustainable Development, First Meeting, 30 August 2005. Netherlands UNECE.  
<http://www.unece.org/env/esd> (downloaded 10.10.10.)
- United Nations Economic Commission for Europe (UNECE) (2010) *Competencies in Education for Sustainable Development: A UNECE Framework for Educators*, UNECE Expert Group on Competences for Education for Sustainable Development, UNECE, version 4, 28.09.10.
- United Nations Educational, Scientific and Cultural Organization (UNESCO) (2004) *United Nations Decade of Education for Sustainable Development (2005-2014): International Implementation Scheme*, UNESCO, Paris.
- UNESCO (2005a) *United Nations Decade of Education for Sustainable Development (2005-2014): International Implementation Scheme*, UNESCO, Paris.
- UNESCO (2005b) *Report by The Director-General on the United Nations Decade of Education for Sustainable Development: International Implementation Scheme and UNESCO's Contribution to the Implementation of The Decade*, UNESCO, Paris.
- UNESCO (2007) *The UN Decade of Education for Sustainable Development (DESD 2005-2014). The First Two Years*, UNESCO, Paris.
- UNESCO (2009a) *Review of Contexts and Structures for Education for Sustainable Development*, UNESCO, Paris.  
[http://www.unesco.org/education/justpublished\\_desd2009.pdf](http://www.unesco.org/education/justpublished_desd2009.pdf)
- UNESCO (2009b) *Bonn Declaration*, UNESCO, Paris.

UNESCO (2010) *Strategy for the Second Half of the United Nations Decade of Education for Sustainable Development: Supporting Member States and other Stakeholders in Addressing Global Sustainable Development Challenges through ESD*, UNESCO, Paris.

United Nations Framework Convention on Climate Change (UNFCCC) (2009) *The United Nations Framework for Climate Change*.

<http://unfccc.int/2860.php> (downloaded 07.10.10.)

#### WEB References

Literature Review on Processes and Learning for ESD can be accessed in three languages at <http://www.unesco.org/en/education-for-sustainable-development/monitoring-evaluation-process/phase-ii-2010-2011/>.

The Johannesburg Plan can be accessed at [http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/POIToc.htm](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm)

The UNECE Competences Framework in Education for Sustainable Development can be accessed at <http://www.unecce.org/env/esd/SC.EGC.htm>

The International Implementation Scheme can be accessed at <http://unesdoc.unesco.org/images/0014/001486/148650e.pdf>

The Phase 1 GMEF can be accessed at <http://www.unesco.org/en/esd/monitoring-evaluation-process/phase-i-2007-2009/>

The First Global Report was released in Oct 2009. It can be accessed at <http://unesdoc.unesco.org/images/0018/001849/184944e.pdf>



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Daniella has over 100 books and refereed articles and has given keynote addresses across the globe. Most significantly, she was a keynote speaker at the UN World Conference in ESD (Bonn, 2009) as well as UNESCO's side event at the World Summit on Sustainable Development (Johannesburg, 2002). Her early work focused on the evaluation of field projects in Tanzania, Madagascar, South Africa, Venezuela, Brazil, Colombia, China, Hungary, Vietnam, Australia, Spain, Tunisia, and Italy.

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