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*Eight*  
recommendations  
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# CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT: THE RESPONSE FROM EDUCATION

*The recommendations from  
the International Alliance of  
Leading Education Institutes*

**December 2009**

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# PREFACE

In this document we – The International Alliance of Leading Education Institutes – present the recommendations from education concerning climate change and sustainable development.

The document has been conducted for the International Alliance of Leading Education Institute by Jeppe Læssøe, Karsten Schnack, Søren Breiting and Simon Rolls from Research Programme for Environmental and Health Education, The Danish School of Education, Aarhus University.

The recommendations are informed by a cross-national analysis of the initiatives that have been taken, and by the problems involved in achieving the goals of the United Nations Decade of Education for Sustainable Development 2005–2014 now that we stand at the midway point. Based on the findings of research teams from ten different countries from six continents, the recommendations provide a timely contribution to the ways in which education can help us meet the challenges of climate change.

The cross-national analysis is documented in the report “Climate Change and Sustainable Development: The Response from Education.” In August 2009, the Alliance partners met at Seoul National University in South Korea and discussed the results of the cross-national analysis. Following this summit, the report was completed and eight recommendations have been formulated to inform and qualify policy initiatives concerning climate change and education.

These recommendations are presented in this document and will be published and presented to the public at a press conference in connection with COP15, the Copenhagen Climate Change Summit, December 2009.

Yours sincerely



INTERNATIONAL  
ALLIANCE  
OF LEADING  
EDUCATION  
INSTITUTES

# EIGHT RECOMMENDATIONS

Climate change is the greatest public policy issue of our time. If humanity is to respond to the challenges, education has a key role to play in promoting understanding and helping individuals, society and governments to make informed choices. This is not simply about giving people information, but ensuring that education – and schools specifically – is mobilized to re-orient society towards sustainable practices.

Education is not a ‘magic bullet’ in approaching climate change and sustainability, but without co-ordinated educational interventions, even the best thought through technical policies will fail.

In order to promote such a reorientation the International Alliance of Leading Education Institutes has agreed on the following eight recommendations, informed by the jointly conducted research project and targeted the world’s political decision makers:

## 1 //

Climate change makes sustainable development an urgent priority. Sustainable development is impossible without learning. We are therefore clear that policies which promote Education for Sustainable Development should play a key part in the negotiation of global agreements on climate change policy (COP15)

## 2 //

Societies need to change radically consumption, production and behaviour patterns to meet the challenges we face. The urgency of climate change policy and sustainable development risks narrowing the role of education to communication of expert-defined advice to citizens. This will be counter-productive in the long-term. We strongly recommend maintaining and implementing the more ambitious aims of Education for Sustainable Development providing people with the com-

petences to take part in the shaping of sustainable development at all levels.

### 3 //

ESD will make demands on all of society but schools will play a critical role, through what they teach and how they model sustainable practices. Governments need to ensure that schools are able to play a leading role in Education for Sustainable Development through the way education systems are managed, schools are organized and pupils taught.

### 4 //

Whole-school approaches are promising: societies need to re-orient schooling towards a stronger emphasis on education for sustainability. In practical terms, this means greater interdisciplinary work, participation in authentic sustainability challenges and interaction with others outside school. We recommend these approaches as a way of integrating Education for Sustainable Development into current educational practices.

### 5 //

One of the key obstacles to Education for Sustainable Development is teacher knowledge and understanding, because of the lack of pre- and in-service teacher training in Education for Sustainable development. We recommend allocating resources to remedy this: universities should offer Education for Sustainable Development courses for pre- and in-service teachers and governments should implement policies which help all teachers to develop their capacity to implement Education for Sustainable Development.

### 6 //

Teacher education in Education for Sustainable Development will not change school practice unless resources and time for experimentation are provided and the sustainability is integrated into the curriculum. Thus, policy initiatives in teacher education should be coordinated with support for Education for Sustainable Development at school level.

### 7 //

Interaction between researchers, teachers, NGOs, public officers and others in the field of Education for Sustainable Development is essential, in order to support knowledge sharing, enhance curriculum development and promote more valid and reliable ways of evaluating ESD. We recommend the establishment of mediating organizations and groups to promote this. Regional Centres of Expertise on Education for Sustainable Development, which already exist at some places, may serve as models for this endeavour.

### 8 //

Education for Sustainable Development research needs to be augmented. It should be focused on (1) documenting the state of practice and identifying promising practices, (2) exploring educational outcomes and their evaluation in respect of Education for Sustainable Development, (3) identifying and explaining opportunities and problems of general relevance. As people are influenced by a number of different agents and media, informal and non-formal education is an important field that needs to be studied more thoroughly.

# PROMISING PRACTICES

Climate Change Education (CCE) and Education for Sustainable Development (ESD) are new concepts. As such, research has not yet been completed which is able to document the learning outcomes of the various initiatives which have so far been implemented in the countries represented here. In the case of competence development concerning such an open and complex issue as sustainable development, policy makers and researchers continue to discuss how efforts can be evaluated in any kind of meaningful way. Nevertheless, the national reports do contain a number of examples of what we will term *promising practices*, i.e. initiatives at various levels which prove that, despite numerous barriers, it is possible to develop promising forms of ESD. In the following, five such promising practices are considered.

## 1. AUSTRALIA: ACTION PLANS AND INITIATIVES

Australia provides a good example of an active and focused national effort to promote ESD. Work began on compiling an Australian national ESD strategy as early as 1999. Whilst national or regional strategies for promoting ESD can today be found in most countries, in Australia these overall objectives and guidelines have now been put into practice in action plans containing a number of major initiatives which have now been implemented.

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"Australia's overriding policy objective is systemic change: 'That is our core business,' declares Mr. Woods. 'We want to achieve lasting change by integrating ESD into mainstream education.' To this end, the policy framework has provided the charter to proceed, as well as a recognized national structure and agenda. It has also

been accompanied by significant funding allocations that provide a compelling incentive for collaboration and participation.”<sup>1</sup>

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Two initiatives in particular are worth highlighting:

1 // *The Australian Sustainable Schools Initiative* (AuSSI) is a whole school approach<sup>2</sup> that is the flagship initiative for ESD in Australian schools. More than 2000 schools and 570,000 students are now participating in AuSSI. AuSSI is a partnership of the Australian Government and the States and Territories that “supports schools and their communities to become sustainable”. With the support from AuSSI partners, schools are offered best practice and quality curriculum support, audit tools to manage resources, ideas for on-ground projects and ways to involve the local community and encourage a shift in the broader community towards more sustainable practices and processes.

The AuSSI provides networking and clustering opportunities for schools and supports schools in their growth from awareness through to leadership in environmental education for sustainability and sustainable living. It fosters school ownership and empowerment and focuses on student involvement and learning. Other countries have similar initiatives, but on a smaller scale.

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1 SEDA. (2007). Policy, Research and Partnerships for ESD in Australia. Sustainability and Education Academy, York University. <http://sustainabilityedu.files.wordpress.com/2008/05/seda-case-studies-international.pdf>

2 The Whole School Approach forms the third of the five examples of promising practices presented here. A description of what this involves can be found below.

2 // *The Australian Research Institute in Education for Sustainability* (ARIES) is primarily funded by the Australian Government. Its core business is to undertake research that informs policy and practice in Education for Sustainability across a range of sectors including: business and industry, school education, community education, and further and higher education. ARIES adopts an innovative approach to research with a view to translating awareness of sustainability issues into action and change. ARIES is concerned with how we inform, motivate and manage structural change towards sustainability.<sup>3</sup> Research also contributes to the development of ESD in other countries represented here, albeit more sporadically and on a smaller scale.

For further information on these initiatives, please refer to the Australian national report available on [www.edusud.dk](http://www.edusud.dk).

**2. THE NUNAVUT TERRITORY IN CANADA: A RADICAL EXAMPLE OF ESD – EVEN IF THE TERM ITSELF IS NOT USED**

The predominantly Inuit territory of Nunavut, Canada offers striking proof that it has been possible, at least in certain parts of the world, to reorient education on the basis of a philosophy consistent with ESD. As described in the Canadian national report:

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3 Cf. <http://www.aries.mq.edu.au/index.htm>

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In Nunavut, the foundations for governance and education are based on the very specific and unique set of relationships by which the Inuit have traditionally lived. The fundamental belief is that the connectedness which individuals feel for each other and to their environment ultimately determines personal character and value to the community. In Nunavut this is the definition of sustainability. In other words sustainability is a core value of Inuit life, so that rather than having to be incorporated or infused into policies and programs, concepts of sustainability form a natural foundation from which all policies and practices are derived. This inversion of the usual order seen in most other jurisdictions within Canada has potentially far reaching implications. It provides a concrete example of how ESD can steer both education and the further development of societies.

Within this framework 'the igloo' is identified as the metaphor for learning. Similar to the building of an igloo, education is seen as a spiralling, developmental progression aimed at producing resilient, lifelong learners. The proposed program of studies for Nunavut schools consists of four curricular strands embedded within six cross curricular competencies, all derived from Inuit *Qaujimajatuqangit*. The four strands replace the subjects of the traditional school curriculum. They are:

- > Nunavut for Nunavusiutit- an integrated core of history, geography and environmental science
- > wellness- an integrated core of social, emotional, physical and spiritual health
- > communication- an integrated core of language and literacy
- > describing and improving the world- an integrated core of math, science, technology and critical thinking.

The framing cross-curricular competencies for these strands are to:

- > develop a collaborative relationship and work together for the common good
- > show environmental stewardship
- > be empowered and build capacity through knowledge and skills acquisition
- > be resourceful and seek solutions through creativity, adaptability and flexibility
- > cooperate, develop shared understanding to arrive at decisions through consensus
- > contribute to the common good through serving and leadership.

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In this approach, ESD is more than a cross-curricular add-on. As a foundational principle, it is built in to every aspect of the curriculum – content, teaching/ learning strategies and evaluation.



### 3. WHOLE SCHOOL APPROACHES

#### – A PROMISING MOVEMENT

Such a fundamental reorientation of the curriculum as that seen in Nunavut would obviously be difficult in many parts of the world where traditional values and ways of living have long since been replaced by a more modern outlook on life. However, in several such countries, work is also being done to rethink schooling on the basis of ESD principles. As is apparent from the chapter on barriers, the main problem is that ESD in schools

typically gets reduced to a handful of isolated activities outside of the regular, exam-oriented timetable or is divided in to smaller topics which are to be incorporated within existing school subjects with an already overcrowded syllabus. Seen in this light, whole school approaches comprise an interesting attempt to tackle the problem of how schools can integrate ESD. At the same time, there is not talk of utopian pipe dreams, but of a concept which has taken root and is currently undergoing parallel development in a number of countries. As such, various forms of green schools, eco-schools, green flag schools and other experiments with a whole school approach are mentioned in the national reports from USA, South Korea, Denmark, Australia and UK.

One of the cornerstones of a whole school approach is an action orientation of student learning. It is therefore conducted in relation to practice – both within the school and the surrounding society. The students are not provided with readymade solutions but instead supported in their consideration of dilemmas and participation in decision-making processes regarding both individual and collective action. The aim is to bring about a development of knowledge and values in an interaction between deliberation and practice, and to incorporate all relevant facets so it is not only a matter of technique, but also of the concrete issues' social, economic, and ethical aspects. This offers the opportunity for integration with the school's other learning objectives.

The most extensive whole school initiative described in the national

reports is the previously mentioned Australian Sustainable School Initiative. The following outline of its goals and principles is a good illustration of the whole school concept:

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### **GUIDING PRINCIPLES OF THE AUSSI**

The Australian Sustainable Schools Initiative:

- > Seeks to develop a school culture committed to the principles of sustainable development;
- > Seeks to go beyond awareness raising to action learning and integration with school curricula;
- > Encourages the involvement of the whole school;
- > Encourages the involvement of a school's local community and encourages a shift in the broader community towards more sustainable practices and processes;
- > Seeks to develop relationships with other areas that impact on the organisation and management of a school;
- > Is founded on a sound basis of theory and practice in schools and school systems, quality teaching and learning, environmental education for sustainability, and
- > Encourages schools to achieve measurable social, environmental, educational and financial outcomes.

### **GOALS**

AuSSI seeks to achieve the following goals:

- > Learning and teaching for sustainability as an integral component of school curricula
- > Schools actively engaged in a continuous cycle of planning, implementing and reviewing their approach to sustainability

- as part of their everyday operations
- > Schools using natural resources, including energy, water, waste and biodiversity in more sustainable ways
- > Schools and school authorities reporting on changes towards sustainability
- > Young people sharing ownership of sustainability initiatives and decision making
- > Schools working towards sustainability in partnership with their local communities
- > Schools and school authorities implementing governance practices that support effective environmental education for sustainability
- > Individuals supported to make effective sustainability decisions and choices
- > Schools and communities developing values that support a sustainability ethos."
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Whole school approaches typically originate as bottom-up initiatives, and there are therefore variations in terms of both terminology and scope. In the USA, for example, the 'Green School Alliance' has focused its efforts on the problem of climate change. In Denmark, 'Green Flag Schools' is part of an international network of 'Eco-schools' where a green flag is awarded to the individual school for implementing a more or less comprehensive teaching programme regarding environmental conditions at the school and in the local community. In South Korea, 'Environmental Conservation Model School Initiative', 'School Forest Project', and 'Associated School Project Network' comprise various attempts to develop whole school concepts.

Research underlines the potential of whole school approaches. In Australia, a pilot study of AuSSI in 2003 found that there were educational,

environmental, social, and professional benefits. A study from the UK has also found evidence of good practice in whole school approaches to sustainability, although it concludes that more could be done to fully integrate ESD across the curriculum.

The UN Decade of Education for Sustainable Development seems to have drawn political attention to the whole school concept, potentially improving the possibilities for its development. An example is the Danish Government's decision to increase the number of green flag schools by 50% by 2014 and to work on broadening the concept from environment to sustainable development. In South Korea, the Presidential Commission on Sustainable Development opened the DESD in 2005 by suggesting that *'ESD should be approached as a re-orientation of the whole education process not as an individual curriculum or educational content. The whole school initiatives should be encouraged to change the school ethos'...* *'ESD in school can be implemented through the connection with curricular activities and extracurricular activities'*.

Precisely the connection between, on the one hand, extracurricular and cross-curricular projects of an interdisciplinary nature and with a focus on practice, and, on the other hand, more traditional single-disciplinary learning is crucial to the ongoing development of ESD. At the same time, it also poses a challenge to whole school approaches if they are to encompass the entire sustainable development perspective whilst ensuring that the practical dimension does not take on a purely technical form, instead forming part a pedagogy

which develops student competence in terms of interdependency thinking and the ability to consider their impact on the world they live in.

#### 4. POSITIVE EXPERIENCES WITH INTERDISCIPLINARITY AND AUTHENTIC LEARNING THROUGH PARTICIPATION IN THE LOCAL COMMUNITY

ESD, including teaching related to climate change, can benefit from the experiences of pedagogical development work within environmental education. In the following, we will highlight two principles – interdisciplinarity and authentic learning through participation in local community projects. Interdisciplinarity corresponds to the complex nature of the challenges of climate change and sustainable development. Authentic learning through local community participation is a way of bringing the abstract and blurred issues closer to home and, not least, a way of increasing commitment and a sense of shared responsibility among citizens.

In the USA, one finds many years of experience working with the educational concepts ‘Investigating Environmental Education Issues and Actions’ (IEEIA) and ‘Environment-Based Education’ (EBE). IEEIA is a skill-development program, designed to help learners take an in-depth look at environmental issues in their community, to make data-based decisions about those issues and to participate in issue resolutions. EBE encourages

the use of environmental themes to enhance instruction within and across the traditional academic disciplines. The pedagogy of EBE is interdisciplinary, collaborative, student-centred, hands-on and engaged. Environmental topics are used to integrate instruction across multiple learning contexts. Teachers from multiple disciplines coordinate their planning so that students repeatedly address a complex and compelling environmental problem using different disciplinary tools as they travel from class to class. Multiple tests of these concepts have been conducted across different contexts, and the results have been remarkably consistent. They are summarised in the US national report:

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The most likely route to empowerment – and to a range of other positive outcomes including enhanced academic achievement and pro-environmental behavior – appears to be sustained participation in complex environmental projects that cut across disciplinary lines. Furthermore, the intervention strategies that have achieved the most compelling and well-documented success have all focused on local participation.

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This conclusion is supported by the results of a large-scale Scandinavian research project, MUVIN. The Danish component of this project involved 100 schools, 300 teachers and 3,000 students during the period 1991 – 1995. The focus for the research was the action competence approach to environmental education and the identification of environmental problems as issues in the community characterised by conflicting interests regarding the use of natural resources.

Among the project's conclusions are several regarding what students value in environmental education, including:

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- > Working with real problems that engage people outside the school.
- > Taking part in a learning project that also creates interests among people outside the school.
- > Co-influencing the actual in-class education in terms of target, content, organisation and concrete design.
- > Working on issues that engage them existentially, and which appear to carry weight for their future.
- > Experiencing institutions and milieus outside the school.
- > Doing cross-disciplinary work that implicates methods, approaches, perspectives, general knowledge and 'real-life studies' in a productive manner.
- > Acquiring new knowledge and insights that strike them as being useful and meaningful.

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In Brazil, work is being done based on the same ideas. In 2003, the School Agenda 21 movement began. The scope of this initiative includes proposals for activities with the school community to reveal the local history, map out the present situation and, ultimately, to devise actions plans for the future.

## 5. REGIONAL CENTRES OF EXPERTISE ON ESD

Regional Centres of Expertise (RCE) work to promote the development of

knowledge and initiatives regarding ESD in a particular geographical area. They do this by creating networks and an organisational platform for collaboration between universities, schools, NGOs, businesses, public authorities etc. In this way, the opportunity arises to share experiences and establish an ongoing dialogue among researchers and practitioners which will benefit both groups in terms of developing knowledge. The RCE concept was created by the United Nations University which, so far, has acknowledged a total of 62 Regional Centres of Expertise around the world.<sup>4</sup>

There are RCEs situated within several of the project's countries. At one of these centres, situated in Tongyong, South Korea, a number of university departments have collaborated with schools and the local community on the development of ESD. At first it emerged that a group of schoolteachers working to integrate ESD within their lessons had difficulties in understanding the concept of ESD and in finding where and how to start the integration process. A number of workshops and forums were therefore established in cooperation with the Tongyong RCE, as well as consultative meetings with the College of Marine Science of the Gyeongsang National University and the Research Institute of East and West Studies at Yonsei University. Hereby, an objective was developed concerning "Increasing awareness of harmonious lives through the exploration

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<sup>4</sup> [http://www.ias.unu.edu/sub\\_page.aspx?catIID=108&ddIID=183](http://www.ias.unu.edu/sub_page.aspx?catIID=108&ddIID=183)

of the future of the community”.

To achieve this objective, the school enhanced its ESD curriculum by studying regional environmental, social, and economic issues in order to understand the key concepts and values necessary to achieve regional sustainability. An Eco-School was built in Pyung Elementary School in order to transform it into a sustainable system featuring tree planting, an “Empty Plate” campaign, and a “Zero Waste” campaign. To expand ESD within and outside of the school, the school has training programs for teachers and parents and a research exhibition on the ‘Future of Our Town’. For the exhibition, a team consisting of students, a teacher, and parents researched a subject of importance to Tongyong’s sustainable development.

# BARRIERS TO OVERCOME

## - WHAT IMPEDES MAINSTREAMING OF EDUCATION FOR SUSTAINABLE DEVELOPMENT?

Efforts to promote climate change education as part of ESD must be made on two fronts. Firstly, they must learn from and refine the promising practices which can already be found;<sup>5</sup> secondly, they must overcome the barriers impeding the mainstreaming of ESD<sup>6</sup>.

Based on the cross-national report, the following crucial barriers can be identified:

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> **Limited teacher qualifications for**

**ESD:** Pre- and in-service training of teachers is essential to the implementation of ESD within schools. Meanwhile, a lack of sufficient teacher education is a recurring theme in the project's countries. As ESD comprises a new, open and wide-reaching field, it is not immediately obvious for teachers what

they are supposed to do with it. For this reason, extensive and concentrated efforts which can offer the necessary inspiration and competences are needed to kick start ESD in schools.

> **Subject divisions within schools**

**hinder ESD:** Developing student competences to participate in solving real-world problems means structuring teaching in ways that allow the use of various forms of knowledge and facilitate the ability to think in terms of contexts and interdependencies. The currently predominant division of teaching into separate subjects therefore constitutes a significant structural barrier.

> **Narrow focus on vocational qualifications:**

In an attempt to be competitive in a global market, educational policy in many countries is focused on controlling the effectiveness of education by means of tests and performance indicators. This reduces willingness among teachers and schools to experiment with new

5 Cf. the specific pages on 'Promising practices'

6 These barriers are described in detail in theme 4 of the cross-national report.

approaches to teaching and learning. In turn, this has an impact on the spread of ESD, with innovativeness, interdisciplinarity, and a broad focus on competence development regarded as vague and idealistic goals which school administrators and teachers find overwhelming and in conflict with the more straightforward requirements concerning vocational qualifications.

- > **ESD is generally added to an already overcrowded curriculum and is given low priority because it is not an examination subject:** In some countries, attempts have been made to integrate ESD within a single discipline (science education); while in other countries, it has been divided into components and integrated within the various existing school subjects. In both cases, ESD becomes an 'add-on' to an already overcrowded curriculum. As a new area, and moreover a highly complex and wide-ranging area, ESD struggles to compete with the more straightforward and clear-cut examination subjects.

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# THE ROLE OF RESEARCH AND RESEARCHERS

## - THE NEED FOR KNOWLEDGE-INFORMED INNOVATION

Researchers constitute important participants in the development of CCE and ESD. The study has identified a number of different roles assumed by researchers and taken stock of research's contributions and deficiencies.<sup>7</sup>

**Researchers as innovators and critics:** In the report, we designate the work undertaken by researchers in developing and discussing the concept of ESD as their 'cultural' role. Partly critical, partly innovative, research has contributed to discussions on the theoretical foundations of ESD, the development of possible pedagogical approaches and principles, and strategies for shaping and evaluating ESD practice directly. This role is important during the early stages of an innovative process, especially within a field such as ESD

where both education and sustainable development can be interpreted in disparate ways. Climate change means that this role remains crucial. Firstly, there is currently a considerable demand for climate change education (CCE), without any clear idea of what it entails. Therefore, there is a need for researchers to monitor the development of CCE and supply inspiring and critical contributions which can qualify the process. Secondly, whilst there is much to gain by developing CCE within an ESD framework, there may be a need for researchers to promote the consideration of how, for example, the distinctly global nature and the extreme urgency which characterise efforts to combat climate change challenge the usual ways of thinking about and doing ESD.

**Researchers as experts:** In a number of countries, ESD researchers play an important role as partners in

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<sup>7</sup> For further details, see the cross-national report, theme 5.

a dialogue concerning the development of political issues to promote ESD. This is an important role, not least because sustainable development is an area handled by politicians and public officials who typically have a greater knowledge of nature and technology than of education, whilst education is an area where politicians and public officials typically know little about sustainable development. A body of knowledge regarding the linkage between precisely these two fields is therefore vital in order to qualify ESD policy. One of the areas where a dialogue between ESD researchers and politicians will be of particular importance over the coming years concerns success criteria and evaluation methods for ESD. The dialogue between the policy level and ESD researchers must continue with the objective of establishing a greater understanding of the particular challenges involved in documenting students' learning and utilisation of competences in relation to a complex issue such as sustainable development.

**The documentary role:** It is perhaps predictable that ESD research has had an innovative and developmental role in conjunction with the introduction of ESD. It comes as more of a surprise that research is in a weak position when it comes to documenting practice. Keeping in mind UNESCO's recommendation that research should be used to support the development of ESD during the UN Decade, one might expect that now, at the halfway point, there would be an extensive body of research on the progress made so far, including both reviews of ESD-related initiatives

and evaluations that could provide insight into existing projects and support their development. Despite the occasional exception, the general impression garnered from the national reports is that such studies are lacking. There is a need to strengthen ESD research so as to document the state of practice and to explore learning outcomes as well as possibilities and problems of general relevance.

**Interactive knowledge development with other stakeholders:**

Research also has an important role to play as a reflective participant in knowledge sharing networks alongside teachers and other ESD practitioners. United Nations University has launched the idea of a global network of 'Regional Centres of Expertise' to promote ESD. Today there exist more than 60 RCE all over the world. The development of this type of platform for mediating between researchers and other stakeholders would seem a promising means of improving research as well as practice.

# THE WORLD'S FIRST GLOBAL **THINK-TANK** ON EDUCATION

The International Alliance of Leading Education Institutions was founded at a meeting in Singapore on 21<sup>st</sup> August 2007. Made up of ten leading institutions in the field of teacher education and educational research (São Paulo joined in 2008 and Cape Town in 2009), the Alliance acts as a think tank which draws together existing expertise and research in education to generate ideas and identify trends, and to serve as a collective voice on important educational issues. It aims to inform governments, international agencies, funding bodies and the public at large, to influence policy and practice in education and thus to enhance the profile and quality of education internationally.

The Alliance comprises representatives from the following member institutes:

- > Graduate School of Education,  
The University of Melbourne, Australia
- > Faculty of Education,

- University of São Paulo, Brazil
- > Ontario Institute for Studies in Education,  
University of Toronto, Canada
- > School of Education,  
Beijing Normal University,  
People's Republic of China
- > Danish School of Education,  
University of Aarhus, Denmark
- > National Institute of Education,  
Nanyang Technological University,  
Singapore
- > School of Education,  
University of Cape Town, South Africa
- > College of Education,  
Seoul National University, South Korea
- > Institute of Education,  
University of London, United Kingdom
- > Faculty of Education,  
University of Wisconsin-Madison, USA

The core reason for the founding of the International Alliance of Leading Education Institutes was the recognition that education needed a “voice”, a group that would seek to offer well-considered and balanced

advice on important educational issues. The group would be mindful of the views of academic researchers, of what evidence and practice had to say, as well as the needs for action on the policy front.

Each year the Alliance partners agree on a key educational issue which is to be at the centre of a joint research project conducted by a group comprising researchers from each of the member institutes with expertise within the chosen field. This research project then forms the basis for the think tank to formulate recommendations which can help qualify the efforts of both policymakers and practitioners regarding the issue in question.



## IALEI COUNTRIES



# BRIEF DESCRIPTION OF THE RESEARCH PROJECT

## - CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT: THE RESPONSE FROM EDUCATION



### PROJECT DATA

- > A joint research project comparing national efforts to promote climate change education and education for sustainable development has been conducted by the International Alliance of Leading Education Institutes.
- > Research teams from China, USA, Singapore, South Africa, Denmark, Brazil, Canada, United Kingdom, South Korea and Australia have participated.
- > The project has been chaired by the Danish research team from School of Education, Aarhus University.
- > Work on the project began in earnest November 2008. Firstly, common guidelines were developed. Secondly, national reports analysing policy and research were compiled. Thirdly, a cross-national analysis, based on the national reports, was conducted.
- > A focus was needed as the educational field is broad and heterogenous. Compulsory schooling was chosen as

this focus. However, most of the issues raised in this study are relevant for other areas of education as well.

- > The research teams and the deans from the ten IALEI partner faculties met and discussed the results of the cross-national analysis at a conference at Seoul National University, South Korea, 17-19 August.
- > Based on the discussions at this conference, eight policy recommendations have been formulated.
- > These recommendations are directly targeted the global Summit on Climate Change, Copenhagen, December 2009, as well as United Nations' Decade of Education for Sustainable Development 2005-2014]



### MOTIVATION

In December 2002, the United Nations *Decade of Education for Sustainable*

*Development* (2005–2014) was adopted by the UN General Assembly, and UNESCO was nominated to act as lead agency for the promotion of the Decade. The ambitious goal of the Decade is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. A sustainable future is defined as a development “that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development Report, 1987). Sustainable development is viewed as a complex issue, encompassing economic, environmental and social dimensions. In other words, sustainable development is essential to satisfy human needs and improve the quality of human life.

However, although we are now midway through the Decade for ESD, the actual role and contribution of education has so far mainly been dealt with in vague terms.

Since the start of the Decade of ESD in 2005, the increasing awareness of accelerating climate change and the potential threats to human existence has led to growing concern for environmental issues. In December this year, the COP15 United Nations Climate Change Conference (the 15<sup>th</sup> annual Conference of the Parties) will take place in Copenhagen, Denmark. Here Ministers, officials, experts and NGOs from 189 countries will discuss and try to reach an agreement on how to tackle the challenge of climate change. The question is whether the role of education will be included in these negotiations, and, if so, which concept of and approach to

education this will entail? There are certainly good reasons for providing the delegates and the global mass media with qualified suggestions of the role education might play.

In August 2008, the International Alliance of Leading Education Institutes therefore decided to pool its resources within the field of Education for Sustainable Development in a project exploring the response from education to the challenges of climate change and sustainable development from a truly international perspective.



## OBJECTIVE AND RESEARCH QUESTIONS

The aim of the joint research project ‘*Climate Change and Sustainable Development: the Response from Education*’ has been to carry out and present a cross-national analysis and a set of recommendations for future ESD and future research in ESD.

The project has been guided by the following four research questions:

- > How is the concept of ESD, and the role and challenges of education in relation to sustainable development, interpreted in national strategies for the promotion of ESD?
- > What is the state-of-the-art of empirical and conceptual research on ESD in the ten participating countries?
- > Is it possible to draw any conclusions on the basis of existing research regarding what works (and what doesn't)?
- > Does education play a part in the national efforts to cope with mitigation

and adaptation to climate change? If so, how is it approached and how do these efforts influence ESD and vice versa?

## STRENGTHS AND LIMITATIONS

The strength of this study lies in its scope. With the participation of researchers from ten nations, the report provides a broad overview of the current situation and developments regarding ESD and CCE in countries of varying size and from every continent (except Antarctica!). Such a relatively wide-reaching short-term project as this cannot fully take into account the amount of detail and depth the field contains. The educational field is broad and complex, encompassing all types of formal education as well as non-formal and informal education.<sup>8</sup> In this study we therefore decided to focus on formal education and, more particularly, on compulsory schooling.

Despite the breadth of the study, attention must be drawn to certain limitations regarding the global perspective. Whilst the ten nations may represent the different continents, they are not among the world's poorest nations. As such, the study may not fully reflect the considerable differences in the challenges of climate change and sustainable development faced by countries char-

acterised by the struggle for poverty reduction through development as opposed to those with high levels of consumption. With the exception of South Africa, for instance, the African continent is not represented, and a number of other areas are notable by their absence including Western and Southern Asia and Eastern and Southern Europe. It is therefore important to be aware that there are other perspectives on education's role in relation to sustainable development and climate change than those described in this study, in spite of its unusually broad scope.

## FURTHER INFORMATION

- > Climate Change and Sustainable Development: The Response from Education – A Cross-National Report from International Alliance of Leading Education Institute:  
*[Http://www.edusud.dk](http://www.edusud.dk)*

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<sup>8</sup> Non-formal education covers educational efforts without any kind of exams (e.g. campaigns and museums). Informal education refers to all types of learning that take place as part of activities without any direct educational aim.

# EXPLANATIONS – CLIMATE CHANGE EDUCATION (CCE) AND EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) – WHAT ARE WE TALKING ABOUT?

## IS THERE SUCH A THING AS CLIMATE CHANGE EDUCATION?

No, not really – but it is coming.

Based on the national reports, we can say that *Climate Change Education is on the agenda all over the world – but is still in its infancy*. There are a lot of calls to address climate change in education, as well as sporadic initiatives in policy and practice, but a clarification of what CCE implies and how it should be promoted is still lacking.

This means that CCE is still open to negotiation. Different positions are at stake: one that regards climate change education as the domain of the natural sciences (understanding climate change scientifically); and another that stresses climate change as an integral part of the challenge of sustainable development, and thus as a matter of providing students with the necessary competences to participate in debate and practice regarding the sustainable

development of society. If the first approach gains a footing, it may counteract efforts to promote ESD as part of UN Decade of ESD. Meanwhile, if CCE is approached as an integral part of ESD, the global attention to climate change could serve as a vehicle for the further promotion of ESD.

## EDUCATION FOR SUSTAINABLE DEVELOPMENT – WHAT IS IT ALL ABOUT?

Like ‘sustainable development’, the concept of ESD is not strictly defined but open to interpretation. Not even UNESCO, responsible for the global Decade of ESD, 2005–2014, has provided a definition. They have, however, described the intentions of ESD by means of a vision saying that:

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## UNESCO

'Education for sustainable development is about learning to:

- > respect, value and preserve the achievements of the past;
- > appreciate the wonders and the peoples of the Earth;
- > live in a world where all people have sufficient food for a healthy and productive life;
- > assess, care for and restore the state of our Planet;
- > create and enjoy a better, safer, more just world;
- > be caring citizens who exercise their rights and
- > responsibilities locally, nationally and globally.'

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In general, the national policy documents talk about a general reorientation of education to enable students to cope with the major challenges of the global society. The following quote from *The Australian Government's National Action Plan for Education for Sustainability (2009)* lists a number of principles that can be found in slightly different versions in the other national reports as well:

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## PRINCIPLES OF EDUCATION FOR SUSTAINABILITY

Education for sustainability is based on the following principles:

- > **Transformation and change**  
Education for sustainability is not simply about providing information but involves equipping people with the skills, capacity and motivation to plan and manage change towards sustainability within an organisation, industry or community.

- > **Education for all and lifelong learning**

Education for sustainability is driven by a broad understanding of education and learning that includes people of all ages and backgrounds and at all stages of life and takes place within all possible learning spaces, formal and informal, in schools, workplaces, homes and communities.

- > **Systems thinking**

Education for sustainability aims to equip people to understand connections between environmental, economic, social and political systems.

- > **Envisioning a better future**

Education for sustainability engages people in developing a shared vision for a sustainable future.

- > **Critical thinking and reflection**

Education for sustainability values the capacity of individuals and groups to reflect on personal experiences and world views and to challenge accepted ways of interpreting and engaging with the world.

- > **Participation**

Education for sustainability recognises participation as critical for engaging groups and individuals in sustainability.

- > **Partnerships for change**

Education for sustainability focuses on the use of genuine partnerships to build networks and relationships, and improve communication between different sectors of society.'

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Not all countries apply the concept of ESD in their national and regional documents. However, the concept of Education for Sustainable Development (ESD) serves today as an umbrella concept: It is not only the subject matter – ESD and CCE –

which is of a global nature. Overall, there exists a more or less common – and thereby global – discourse on ESD questions with roughly the same positions and discussions. This is evident from the policy documents and the research analysed and is undoubtedly linked to UNESCO's Decade for ESD, 2005–2014, and the associated international agreements.

The openness of the concepts 'sustainability' and 'sustainable development' is unavoidable, and should be treated as a virtue rather than a burden. Because it is inevitable that stakeholders within different political and philosophical ideologies will attempt to shape the meaning of SD, pupils must be equipped to participate in the ongoing debate on alternative futures.

# STATE-OF-THE-ART FOR EDUCATION FOR SUSTAINABLE DEVELOPMENT

The decision at the UN Global Summit in Johannesburg (2002) to designate the period 2005–2014 the Decade of Education for Sustainable Development aimed at promoting a global endeavour to strengthen the development of ESD. We are now midway through the Decade, so how far have we come?<sup>9</sup>

Based on the IALEI project's national reports, the current state of affairs can be described as follows:

The Decade of ESD has so far been characterised by efforts to get to grips with the concept; by isolated, pioneering development projects; and by incipient political strategies, action plans and initiatives. The field of ESD has thereby not, generally speaking, progressed to the point

where it could be considered well-established and integrated within the formal education system. Rather, its status remains marginal due to the existence of a number of barriers that create a gulf between the well-worded intentions and the actual implementation. In other words: *We are facing a huge gap between the well-worded and comprehensive intentions and actual implementation.*

Since its inception in 2005, UNESCO's Decade of ESD has drawn attention to the field and also put governments under pressure to take a responsibility and intensify their ESD efforts. During recent years, there has likewise been growing concern about climate change which has resulted in the launch of new initiatives within this area. There is evidence of this tendency in all the countries, but it is also a recurring theme that examples of substantial policy and research initiatives within the field remain few and far between.

9 UNESCO, which has responsibility for the Decade, monitors and assesses progress. Here, the focus has been on the development of context and structures. For further details, see: [http://www.esd-world-conference-2009.org/fileadmin/download/background/DESD\\_key\\_findings\\_and\\_way\\_forward\\_23March09\\_4.pdf](http://www.esd-world-conference-2009.org/fileadmin/download/background/DESD_key_findings_and_way_forward_23March09_4.pdf).

## NATIONAL DIFFERENCES

The countries involved are moving at different speeds: Along with the broad tendencies, the national reports also demonstrate several interesting differences. First and foremost are differences in how early the various countries first began to implement ESD and, similarly, how much progress they have made. Australia began their process in 1999, i.e. three years before the Decade was adopted at the 2002 Johannesburg Summit. Since, they have compiled national strategies which have resulted in action plans and, in turn, led to the realisation of a number of significant initiatives. In the United Kingdom the interest in the area has increased gradually from environmental education in the 1990s to ESD in this decade. The Asian countries represented here – China, South Korea and Singapore – were relatively late adopters of ESD; however they seem to be progressing at a faster rate than several Western nations. Brazil and South Africa share a situation where initiatives on the governmental level have been late and weak while there, on the other hand, are good examples of NGO-initiatives and – in South Africa – a strong research tradition in the field. Despite the difference in size, USA and Denmark both constitute examples of countries where there existed a number of activities and policy initiatives within the area back in the 1990s, but these were later halted by a change in political priorities, a tide which is only now beginning to change. Canada is a country with a proud tradition for

environmental education and this seems to have resulted in a critical reception of the concept of ESD among the Canadian research community. As a large country divided into self-governing provinces, Canada is at the same time a good example of the considerable variations that can be found regarding how ESD is viewed and implemented within a single country.

## THE CHALLENGE TODAY: TO REPLACE A NARROW AND MARGINAL APPROACH TO ESD WITH A MUCH MORE COMPREHENSIVE AND INNOVATIVE APPROACH

As mentioned previously, ESD is open to different interpretations. One extremely widespread interpretation limits sustainable development to environmental efforts and education to a question of teaching children the correct form of environmentally-friendly behaviour. A more comprehensive, and thereby far more demanding, interpretation can, however, be identified. In this case, sustainable development is about being able to develop solutions which take the complex relationships between environmental, socio-cultural, and economic objectives and interests into consideration. It is also a matter of being capable of considering consequences within a more long-term and global perspective than has previously been the case. Also here, education involves the promotion of behavioural change, but without fixed answers.

The central and far greater task facing education is to ensure that everybody is able to participate actively and competently in the development.<sup>10</sup>

In general, the major challenge in the ongoing development of ESD is to transcend an approach to ESD limited to behavioural directives appended the existing lessons and move towards a reorientation of teaching with a view to providing students with the necessary competences to participate in the creation of a sustainable future.

This competence development perspective is typically incorporated in the national and regional strategies for ESD: the sore point is transforming the good intentions into practice. This is due in part to the broad strategies often being interpreted within a narrow ESD perspective; in part to existing disciplinary boundaries, curricular requirements, teaching forms and teacher competences which often form barriers to the implementation of a competence-oriented approach to ESD.<sup>11</sup>

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10 The box 'Principles of Education for Sustainability' illustrates the competences required. The chapter 'Why climate change challenges the way we think about education' can furthermore give an impression of the huge demands for competence development caused by climate change. Finally, theme 1 in the cross-national report provides a closer examination of the various different perspectives on ESD.

11 For further details, see the chapter on barriers.

# RE-THINKING EDUCATION

## – WHY CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT CHALLENGE THE WAY WE UNDERSTAND AND PRACTICE EDUCATION

Our world is changing rapidly – economically, ecologically, technologically, culturally, in terms of population, international relations, social structures etc. These changes result in increased tension between development and sustainability. During recent years, the focus on this tension has been accentuated by the accelerating climate change. The number of warnings from scientists has increased and a mood of urgency marks the present situation. Should the educational system just neglect this and continue as usual – or how should it respond to these challenges?

In the following, it is argued that the educational sector should play a vital role in tackling the challenges of climate change and sustainable development, and that, as a result, a number of fundamental ideas regarding the essence and purpose of education must be reconsidered.

### CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT AS AN EDUCATIONAL ISSUE

Education for Sustainable Development is about more than climate change education, but today, the changing climate provides an important field for ESD. Generally speaking, climate change is not chiefly a scientific issue anymore. We are able to describe climate change scientifically. What we don't know are its consequences or implications. We are facing a series of risks and have to act although our knowledge is uncertain. This means that the issues are now about being able to assess a number of interdependent aspects and decide upon a suitable course of action. What would be enough – and what would not be enough? Should we do it in this way or that way? To qualify these kinds of considerations and decisions is fundamentally an educational issue.

Of course education should provide people with scientific facts, but the major challenge is to facilitate their value reflections and decision making competences – in their everyday lives and as participants in a societal learning process regarding sustainable development. When we are talking about Education for Sustainable Development in this sense, it is not only a task for educational institutions. They are important, but can achieve little alone. Governments, companies, mass media, NGOs, civil society and private households all have a role to play.



## THE NEW CHALLENGE FOR EDUCATION: TO PROMOTE LEARNING WITHOUT RIGHT ANSWERS

Our educational institutions were established and structured on the basis of a strong belief in objective knowledge and right answers to every question. The task of education was to provide students with the truth and correct techniques. This role is still valid – factual knowledge and efficient techniques are crucial prerequisites for rational action. However, sustainable development has no right answers:

- > At the core, one finds a fundamental dilemma: To 'sustain' versus to 'develop'. Dilemmas have no right answers. However, they can be managed in different situations on a more or less qualified basis.
- > Sustainable development means deciding how to deal with a series of risks. Yet such risks always contain a degree of

uncertainty and are more a matter of being able to assess the interplay between a number of aspects and of ethical considerations of what is good and bad than of uncovering the truth.

- > There exists a widespread consensus regarding the importance of sustainable development, but not regarding what it entails in the form of concrete actions. How much should be done to gain a sustainable development? There is no right answer. We must act on a qualified basis and learn from our experiences. Sustainable development is impossible without learning. The educational sector has a vital role as the facilitator of this learning at every level – from the single individual to the society as a whole.
- > Sustainable development is not, nor can it ever be, a clearly defined objective. It is possible to envisage countless sustainable developments, so the question is: what kind of sustainable development do we want? In considering this question, education can qualify our abilities to imagine various future scenarios, to assess technologies, and to consider the ethical and political aspects – but it cannot and should not try to provide us with the right answers.



## THE NEW AND EXTENDED SCOPE OF EDUCATION

Climate change and the vision of a sustainable development have given education a new, expanded horizon:

- > *We must be capable of forward thinking:* Sustainable development requires planning, not as usual just 10-20 years ahead, but several generations. We

- > therefore need to develop our abilities to envisage a number of different future scenarios – not just idle imagination, but tied to decisions, choices and planning.
- > *We must be capable of global thinking:* We need to think beyond our own little part of the world and society. Globalisation must also be a mental process – which does not make matters any easier. We have to learn how to cope with this increased complexity. And we have to expand the sociological imagination to understand how global events affect our lives – and vice versa, i.e. how our lifestyles have consequences in other parts of the world.
- > *We must be capable of understanding and taking into account common interests in the broadest sense:* Climate change and sustainable development challenge us both intellectually and ethically. We have grown accustomed to making decisions on the basis of ‘what is best for me, right here, right now?’. Sustainable development is about also being able to consider the consequences of our actions for someone else, somewhere else, at some point in the future.

CLIMATE CHANGE  
AND SUSTAINABLE  
DEVELOPMENT:  
THE RESPONSE  
FROM EDUCATION



INTERNATIONAL  
ALLIANCE  
OF LEADING  
EDUCATION  
INSTITUTES

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