

Development of a National Approach to Monitoring, Assessment and Reporting on the Decade of Education for Sustainable Development

Stage 1: Identification of National Indicators



Summarising Documented Experiences on the
Development of ESD Indicators
and
Networking with Expert Groups on ESD Indicators



Australian Government

Department of the Environment and Water Resources

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&

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Acronyms

ARIES	Australian Research Institute in Education for Sustainability
CEC	Commission on Education and Communication (IUCN)
DEFRA	Department for Environment, Food and Rural Affairs (UK)
DEW	Australian Government Department of the Environment and Water Resources
DESD	Decade of Education for Sustainable Development
DfES	Department for Education and Skills (DfES) (UK)
EFA	Education for All
ENSI	Environment and School Initiatives
ESD	Education for Sustainable Development
IIS	International Implementation Scheme (DESD)
IUCN	The World Conservation Union
KIG	Key Informant Group
MDGs	Millennium Development Goals
MU	Macquarie University
NGO	Non-Government Organization
NMC	Nordic Minister Council
SD	Sustainable Development
SDC	Sustainable Development Commission (UK)
SEED	School Development through Environmental Education
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Education, Scientific and Cultural Organization
UNGA	United Nations General Assembly
UNLD	United Nations Literacy Decade
WSSD	World Summit on Sustainable Development

Table of Contents

Acknowledgements	2
Acronyms	3
Executive Summary	5
1. Context.....	7
2. What is an indicator?	8
3. The Research Study	10
4. ESD Indicator Initiatives	10
4.1 UNECE: Developing Indicators for the Regional Strategy for ESD.....	11
4.2 UK: Developing an ESD Indicator for Formal Education within the UK Strategy for SD	12
4.3 UNESCO-IUCN Asia-Pacific DESD Indicators Project	14
4.4 The Nordic Minister Council: Developing ESD indicators for the Regional Strategy.....	15
4.5 Germany: Developing ESD indicators for the DESD National Action Plan and Formal Education	15
4.6 European Research Project Indicators for ESD.....	17
5. Findings: Issues and Implications of the Initiatives	18
6. Recommendations arising out of Key Learnings.....	33
7. Summary.....	35
References and Appendices	38

Executive Summary

The United Nations Decade of Education for Sustainable Development (DESD) 2005-2014 provides an important opportunity to enhance the profile of Education for Sustainable Development (ESD) in formal and informal learning spaces and assist in the transformation to sustainable societies worldwide. Monitoring and evaluation during the DESD will be key to ascertaining change in DESD priority areas and ensuring the ongoing relevance and effectiveness of ESD policies, programs and activities.

Interest in the concept of ESD indicators is recent. Even so, indicators are fast becoming one of the most commonly applied and promoted monitoring and assessment strategies in ESD. They play an important role in providing information that assists with the development of ESD. Indicators influence policy making and reorient stakeholder actions to ensure that ESD policies, programs, and activities are progressing during the DESD. Although indicators in general are not a new concept, little previous experience in the area of ESD indicators means that questions remain as to what an ESD indicator looks like and what types of indicators best align with ESD.

This report presents the research findings of a project entitled 'Development of a National Approach to Monitoring, Assessment and Reporting on the DESD'. The research was undertaken between May and August 2006 by the Australian Research Institute in Education for Sustainability (ARIES) for the Australian Government Department of the Environment and Water Resources (DEW). The document reviews national and international experiences and lessons learned in the development of ESD indicators as well as the latest thinking on ESD indicators. A number of questions are used to structure the analysis:

- Q. Who was involved in the ESD indicator development process?
- Q. What indicator types were developed? What issues underpin the various indicator types?
- Q. How were the ESD indicators developed? What processes were undertaken?
- Q. What are the plans for data collection? Who will be responsible for data collection?

The research found that countries and regions in Europe, North America and the Asia-Pacific have begun to develop ESD indicators for the Decade in response to a particular ESD strategy or action plan. The indicator initiatives, driven mostly by national government agencies, are being developed mainly through a process involving cross-sectoral working groups. These groups are engaged in the development of indicators which point to good practice and advancing learning rather than simply establishing benchmarks or determining performance. Learning has been identified as an essential component of the ESD indicator development process.

The study has found over 10 indicator types that are distinguishable by their purpose and focus. These fall into four main indicator categories:

- **Status Indicators:** assess variables that highlight the position or standing of ESD in a country.
- **Facilitative Indicators:** assess variables that assist, support or encourage engagement with ESD.
- **Result Indicators:** assess variables relating to the initial, medium term and long term achievements during the DESD
- **Communication Indicators:** disseminate information relating to a range of specific ESD indicators in a way that is accessible or facilitates communication to stakeholders and the general public.

These indicators can be used to assess progress at the national level. They seek different types of data and provide insight at differing levels of implementation. Stakeholders choose core sets of meaningful and relevant ESD indicators based on the information and purpose of each indicator type. Data collection for ESD indicators is considered to be a difficult task, as there is little data in existence that is useful to the ESD reporting process.

Recent experiences in ESD indicators have been limited in scope and many are still in their early stages. Experiences in the later stages of indicator development are likely to offer a valuable source of input on the ESD indicator development process. However, several lessons have been learned from the process of developing ESD indicators to date and these lessons have informed the following recommendations:

Participation

- The indicator development process should enlist support and involvement from several federal government agencies beyond the education and environment departments.

- *Representatives from the state and territory government agencies need to be involved to make a national indicator initiative viable.*
- *A working group of stakeholders from across the social sectors should be established to assure broad support for a national indicator initiative.*
- *The indicator development process should avoid the dominant representation of a particular sector to assure accessibility and credibility of the indicator framework.*
- *A facilitator needs to be appointed to manage the indicator development process. This person needs to not only manage conflicting interests but also provide ways of working collaboratively and learning about monitoring and assessing ESD.*

ESD Indicators

- *Those facilitating the indicator development process need to clarify from the start that the task is to develop ESD indicators rather than SD, economic, social, and environmental or education indicators.*
- *The indicator development process needs to involve stakeholders in a learning process about: indicators, their functions, approaches, the types available to assess ESD and the language associated with an indicator framework. This gives stakeholders the opportunity to explore alternatives to the indicators that they have previously been exposed to as well as develop a common indicator language that is accessible to all.*
- *The working group needs to be briefed so that the indicator development process goes beyond traditional indicator types to recognise the potential of innovative indicators in assessing the quality of learning and degree of social change*
- *Assess progress in ESD by using a set of indicators rather than one single indicator.*
- *Indicators that encourage research and learning in practice need to be developed.*
- *An indicator framework needs to be able to communicate the essence to stakeholders and not appear too intimidating.*
- *The total number of indicators needs to be a manageable number. Identifying a core set of indicators is a good way to proceed.*
- *Relevant criteria to assess the suitability of indicators should be developed.*
- *ESD practitioners should be encouraged and invited to use indicators for self-assessment.*

Process

- *Set clear targets for the DESD before the indicator development process begins.*
- *Stakeholder engagement needs to be a central part of the indicator development process.*
- *The facilitator of the indicator development process needs to be aware and expect stakeholders to have diverse interests and perspectives. These might create conflict that can be potentially detrimental to the process.*
- *The facilitator of the indicator development process needs to work transparently and with a clear brief. This is critical to the success of the initiative.*

Data Collection

- *Data collection needs to begin as soon as possible and efforts should be made to collect new descriptive data in innovative ways.*
- *Data collection should utilise existing data capture opportunities.*
- *Networking with others involved in national indicator data collection initiatives is important. Their experiences can be valuable in guiding the Australian initiative.*
- *Capacity building in ESD indicators and data collection should be encouraged.*

1. Context

The United Nations Decade of Education for Sustainable Development (DESD) 2005-2014 provides an important opportunity to enhance the profile of Education for Sustainable Development (ESD) in formal and informal learning spaces and assist in the transformation to sustainable societies worldwide.

The Department of the Environment and Heritage in its paper, *Extending the Vision: Australian Government Engagement with the UN Decade of Education for Sustainable Development 2005-2014*, acknowledges the opportunities that this Decade can bring to Australia. The UN DESD will provide a platform for Australians from all walks of life to share experiences and learn about the implications of sustainable development for their lives. In addition, monitoring and evaluation is considered to be one of the key strategies for achieving progress during the Decade. In *Caring for the Future*, the Australian Government's Strategy for the UN DESD, sharing the outcomes of monitoring and evaluation has been highlighted as an invaluable source of experience assisting to ensure broader learning and encourage coordination of ESD activities.

Why develop ESD indicators?

Monitoring and evaluation during the DESD will be key to ascertaining the changes and impact of the DESD in Australia. According to the DESD International Implementation Scheme (IIS), suitable and relevant indicators need to be identified from the start of the Decade¹. The project entitled *Development of a National Approach to Monitoring, Assessment and Reporting on the DESD* will assist with this process culminating in a framework of indicators which will enable the Australian Government to:

- assess the effectiveness of national ESD initiatives contributing to the DESD
- report to the public and internationally on Australia's progress during the Decade
- improve the implementation and effectiveness of Australian Government ESD policies and programs.

Identifying change in priority areas ensures the ongoing relevance and effectiveness of ESD policies, programs and activities². All changes identified will feed into the Australian Government's policy and planning for the Decade, including the review of the National Action Plan, and design of new programs. They will also be useful in guiding (and providing national leadership to) other stakeholders in reporting on progress with their initiatives throughout the Decade.

Evaluating progress on a pre-determined scale can be limiting. ESD is an exploratory process which needs to be underpinned by flexible, open-ended processes that allow for learning and adaptation along the way. Indicators provide stakeholders with a framework within which to assess and learn about the impacts of ESD efforts without the rigidity of evaluating for accountability or performance purposes³.

What will be different/better?

Rather than working towards pre-determined outcomes that tend to stifle learning and adaptation, ESD indicators encourage understanding and change. Learning can be stimulated during the ESD indicator development process as well as when

applying the indicators in practice⁴. Broad stakeholder participation in these processes is key to advancing knowledge and understanding about ESD and ESD indicators.

In particular, collaborative processes that encourage sharing experiences and ideas on progress in ESD assists society to challenge the mental models that lead us to unsustainability⁵. Developing and using ESD indicators to monitor and assess progress during the DESD is another opportunity to motivate individuals to make decisions and take action towards sustainable development. The process tends to be empowering, allowing change for a sustainable future to emerge rather than be pre-determined as a final sustainability outcome that can potentially suppress meaningful progress⁶. Taking advantage of the learning opportunities that ESD indicators offer us is key to stimulating true societal change and moving past actions that maintain the *status quo*.

2. What is an indicator?

Indicators are becoming one of the most commonly applied and promoted monitoring and assessment strategies in ESD⁷. They assist stakeholders in making decisions and taking action by giving value to a selection of variables of interest⁸. The United Nations Economic Commission for Europe (UNECE) Expert Group on ESD Indicators described indicators as having the ability to point to an *issue* or *condition* and identify how well a system is working. If a problem exists, they help stakeholders to determine which decisions or directions to take in order to address the issue⁹. In addition, indicators have been described as having the ability to show information about a variable that is not always visible or easily measured¹⁰.

In general terms, indicators are used to determine a quality, characteristic or property of a system. Rather than show the characteristic directly, an image is expressed by using a specific measurement or observation procedure¹¹. In other words, ESD indicators do not show progress in ESD directly but rather provide information about a range of ESD attributes that can be considered together to determine overall progress. For example, the direct action of learning cannot be seen. Therefore, indicators are used to measure progress in learning by communicating information about the inputs and outcomes of learning¹². Thus, ESD indicators provide stakeholders with vital, often difficult to measure, information about the status and quality of policies, activities, processes and their effects.

Indicators can be used for a range of different functions in practice. Providing information on diverse ESD variables, ESD indicator functions include, but are not limited to:

- acting as a warning system or providing clues on the status of a system
- accounting for the effectiveness of resources that have been spent on a program or policy
- determining the performance of individuals or groups over time
- comparing progress across a region
- guiding planning
- promoting learning¹³.

Indicators also play an important role in influencing policy making for ESD¹⁴. Stakeholders may find that more than one indicator function is appropriate to their

particular ESD efforts. Box 1 highlights how indicators have been used for different purposes in practice.

Measuring progress in ESD requires the collection of both quantitative and qualitative data. Quantitative indicators involve measurable data in the form of simple numbers and/or ratios. Qualitative indicators involve observational data in the form of descriptions or observations¹⁵. Although both types of data can provide valuable information, it is interesting to note that the UNECE Expert Group found little use for quantitative indicators when developing indicators for their Strategy for ESD¹⁶. In addition, a debate has surfaced among ESD practitioners about the dominant use of indicators based on quantitative data. Often these indicators encourage monitoring and assessment that is concerned with hitting performance targets¹⁷. Alternatively, many ESD experts are encouraging a more flexible, learning approach to monitoring and assessment through the use of indicators based on qualitative data¹⁸.

These conflicting approaches to ESD indicators have their advantages and disadvantages (see Appendix 1 for further information on these approaches)¹⁹. Stakeholders must make an effort to learn about these approaches as well as be aware of any existing perceptions surrounding indicators. Many stakeholders have worked with a certain type of data and/or have preconceived ideas of what an indicator should look like or their accuracy. Therefore, developing a common understanding among stakeholders about ESD indicators is key to assisting with the collaborative decision making necessary to develop a framework. However, it is important to note that the existence of little previous work in the area of ESD indicators means that many questions remain about the types of indicators that best align with ESD. This report represents an attempt to compile all of the existing information regarding ESD indicators in order to provide a basis from which to develop a relevant and meaningful ESD indicator framework.

Box 1 The Different Functions of Indicators

- Sustainable development indicators are applied in order to deduce the current state, direction and/or rate of change (Lawrence 1998).
- Sustainable development indicators not only track progress but also provide the foundation for the development of performance targets (UNSD 2005).
- Educational indicators play a central role in today's accountability systems because they focus attention on results such as a school's performance on standards-driven tests (Lashway 2001).
- Decision makers in several countries formed the International Indicators of Education Systems (INES) project in 1998 because they required the means to compare the performance of their education systems with those of other countries, to better assess the effectiveness of their education systems, and to monitor their evolution (Bottani 1996 p.279).
- The UNECE Expert Group on ESD Indicators wanted to promote higher level learning in a number of ways: encouraging institutions and learners to set their own indicators and providing opportunities for respondents to state what they think their achievements will be over the next reporting period (Vare 2006b).

3. The Research Study

Stage 1 of the project, *Development of a National Approach to Monitoring, Assessment and Reporting on the DESD*, is a scoping study which sought to review documented experiences and expert knowledge in ESD indicators to inform the development of a national framework. This report provides a summary of findings identified by the review and learnings based on networking efforts with ESD experts. The final part of Stage 1 identified the reporting needs of Australian stakeholders and involved a consideration of how Australian culture and context will affect the development of the ESD indicator framework.

Stage 2 of the project comprised the development of an Australian framework for ESD indicators.

The research undertaken for this report sought to identify the issues and implications related to the development of ESD indicators and the lessons learnt from these experiences. Efforts were made to identify:

- which countries or regions have developed ESD indicators
- who has been responsible for the management of this process
- how they have undertaken process
- the types of indicators developed
- how the data required will be collected.

The report consists of a description of the *scope* of recent ESD indicator initiatives; a summary of the *findings and key lessons learnt*; a list of *recommendations* for developing a national indicator framework; and concluding remarks in the form a brief *summary* of this document.

The details of the initiatives included in this report have been validated by a group of stakeholders that are collaborating on a UNESCO–IUCN CEC Asia-Pacific DESD Indicators Project. These stakeholders included key international ESD practitioners; representatives from public agencies involved in developing indicator initiatives from around the world and representatives of UNESCO National Commissions in the Asia-Pacific responsible for reporting for the Decade. This validation proved vital as few ESD indicator initiatives have been documented or published, and most initiatives are currently in the early stages of development. They assured the accuracy of our information.

A key informant group (KIG) was formed specifically for the scoping study to assist with the analysis of initiatives to date. Their input was sought in order to determine the value and contribution of recent efforts and their implications for the development of an Australian national framework. The group consisted of ESD experts who are currently involved in ESD indicator initiatives.

4. ESD Indicator Initiatives

Coupled with the initiation of DESD launches, strategies and activities, the onset of the Decade has resulted in a small movement of ESD indicator projects. Seven specific ESD indicator projects have been identified spanning regions across Europe,

North America and the Asia-Pacific region. These initiatives are reviewed in this section and presented in tabular format in Appendix 2. Little documented information about these initiatives exists and much of the information was compiled by contacting electronic networks for information. This means that it is difficult to present the information systematically where gaps in the information exist.

Indicator efforts represent a mixture of regional and national projects with the majority still in their early stages. Government authorities are leading the processes with both environmental and education ministries playing an important role. Fourteen related initiatives from around the world were also identified. These include the development of indicators and quality criteria for sustainable schools, sustainability in higher education, environmental education, Agenda 21, community wellbeing and lifelong learning. These are further detailed in Appendix 3.

4.1 UNECE: Developing Indicators for the Regional Strategy for ESD

The United Nations Economic Commission for Europe (UNECE), which comprises 55 countries from across Europe, Central Asia, the USA and Canada, has recently concluded perhaps the most substantial ESD indicator effort to date. ESD was formally recognised in the region in 2003 at the Environment for Europe Ministerial Conference in Kiev where Member States endorsed a Ministerial Statement on ESD. An ESD Task Force was nominated to prepare a Regional ESD Strategy that was adopted in 2005 at Vilnius by all UNECE Member States (except the USA) along with the Vilnius Framework for Implementation.

Subsequently, an Expert Group on ESD indicators chaired by Roel van Raaij was formed with the task of developing ways to monitor: (a) Member States' progress in implementing the ESD Strategy and (b) the effects of implementing the ESD Strategy. The Expert Group included persons with extensive experience in national and international environmental and education policies, environmental education and ESD. The Group met on four occasions to discuss and develop ESD indicators that reflected the Strategy's objectives. In addition, members of national ESD committees (focal points), stakeholders, as well as the UNECE Steering Committee on ESD, provided feedback to the Expert Group.

The ESD indicator development process included Expert Group discussions on key areas of action within the Strategy and on issues such as: definitions, approaches, scope, and learning. Highlighting the need to measure effectiveness of the Strategy throughout its entire implementation, the Expert Group developed indicators that ranged from initial measures on governance to possible effects in society. In particular, four indicator types were developed:

- **Checklist Indicators:** provide information on initial policy, legislation, regulatory and governance measures taken by a government in order to implement the Strategy
- **Input Indicators:** provide information on a broader spectrum of activities taking place in terms of the implementation of the Strategy (e.g. amount of public authority money invested in the ESD materials, proportion of public supported research on ESD)
- **Output Indicators:** provide information on the direct results of these activities (e.g. performance of trained teachers, number of businesses involved in ESD projects, number of educators who received training on ESD issues); and
- **Outcome Indicators:** provide information on the possible impact of the implementation of the Strategy particularly on values, attitudes and choices in

favor of SD (e.g. learning outcomes resulting from ESD partnerships, community-based projects and business involvement).

These indicator types cover a variety of areas such as: policy, regulatory and organisational frameworks, school curriculum and tertiary education courses, educator training and materials, community projects and informal education, research as well as ESD quality, participation, networks and cooperation (see Appendix 2 for the UNECE Draft Reporting Format and Indicators).

The indicators range from quantitative to qualitative and differ in their means or source of verification and timeframe. The indicators developed, including all sub-indicators and the separate self-assessment, are meant to be used, not individually, but all together in order to assess the state of progress in, and effectiveness of, implementing the UNECE Strategy for ESD. In addition, the resulting indicators and reporting mechanism were not developed for comparison among countries within the region, but for learning and developing towards a 'learning region'.

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4.2 UK: Developing an ESD Indicator for Formal Education within the UK Strategy for SD

In March 2005, the UK Government launched *Securing the Future*, a new strategy for sustainable development. The Strategy identified 68 indicators to assess progress during implementation: 20 headline or core indicators and 48 supporting indicators. Within the Strategy the government also identified its intention to develop, as one of the supporting indicators, an ESD indicator to show the impact of formal learning on knowledge and awareness of sustainable development.

The UK Sustainable Development Commission (SDC) was given the responsibility of developing possible approaches to this indicator and forwarding its proposals to the Department for Environment, Food and Rural Affairs (DEFRA) and the Department for Education and Skills (DfES). In November 2005, the SDC commissioned an ESD consultant (John Huckle) to research approaches to this indicator and agreed with the consultant's request to change the wording of the indicator to *The extent to which*

learners have developed the skills, knowledge and value base to be active citizens in creating a more sustainable society in order to better reflect the first objective of the DfES action plan for sustainable development.

The approaches developed by the consultant were drawn from the ESD literature and reflected six distinctive rationales, each offering a framework of learning outcomes and related modes of assessment, and each yielding its own indicator. These approaches are, to differing degrees, relevant to all levels and forms of education, but in developing sample assessment or survey instruments, the focus was on primary and secondary levels of formal education. The six approaches were:

- **The sustainability literacy approach:** Indicator - The percentage of learners who attain the required level of sustainability literacy
- **The sustainable schools approach:** Indicator - Percentage of pupils that are able to relate activities carried out in schools to key themes of sustainable development and recognise the values, skills and knowledge that are relevant to taking considered action on issues relating to such development
- **The citizenship survey approach:** Indicator - The percentage of pupils who report knowledge, attitudes and activities relevant to active citizenship for a sustainable society in questionnaires that form part of an ongoing NFER study
- **The action research approach** (or sustainable schools approach): Indicator - The percentage of learners who have successfully taken part in action learning designed to explore ways of creating a more sustainable society.
- **The frame of mind approach:** Indicator- The percentage of learners who have developed sustainability as a frame of mind
- **The dilemma approach:** Indicator - The percentage of learners having the skill to match imaginary characters' decisions to the knowledge and values that is likely to have prompted such decisions.

These approaches were outlined and justified within a consultation paper that also included sample assessment/survey instruments and discussion of the possible advantages and disadvantages of each approach. This was the focus of two consultative workshops for members of the UK ESD community held at DfES in February 2006. Workshop participants were asked to identify their first and second choices from the six approaches suggested. They were also asked to rate the two approaches selected with reference to eight criteria: validity, reliability, simplicity, objectivity, cost, equal opportunities, good practice and government policy. Whereas there was overwhelming support for the action research approach and some support for the sustainable schools approach, there was clear suspicion, or outright rejection, of any approach that sought to test prescribed knowledge, skills and values.

Sources:

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4.3 UNESCO-IUCN Asia-Pacific DESD Indicators Project

UNESCO Bangkok and the Commission on Education and Communication (CEC) of the World Conservation Union (IUCN), in conjunction with Macquarie University (MU), are currently undertaking a project that aims to produce and pilot a set of guidelines on how to develop ESD indicators at the national level in the Asia-Pacific region.

Motivated by the need to monitor and assess progress during the United Nations Decade of Education for Sustainable Development (DESD), the guidelines seek to provide a practical resource to UNESCO national commissions and governments in the region. Initiated in March 2006, the guidelines will be designed over a projected period of nine months and subsequently piloted by a selection of Asia-Pacific countries in 2007. In August 2006, a meeting with the proposed pilot countries was held in order to assess the practicality of the guidelines, identify links to other reporting mechanisms, consider data collection needs and highlight future actions.

The guidelines are being developed with the input and advice of two key informant groups. The ESD Expert Team, representing international stakeholders with expertise in ESD and monitoring and assessment, are connected via an email-list where communications encourage sharing of experiences and ideas. Similarly, the guidelines review team, representing persons responsible for the DESD within Asia-Pacific UNESCO national commissions and field offices, are connected via another e-list, to identify and share DESD reporting priorities and needs. Results and conclusions from both groups will be shared in order to connect expertise on indicators with reporting priorities and thereby create a truly practical set of

guidelines. Complementary to this exchange of knowledge, the identification of measurement tools, as well as DESD international, regional and national publications, will inform the process.

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- a. Tilbury (2003) *Development of Indicators for Monitoring and Assessing Progress during the UN Decade in Education for Sustainable Development*. Proposal presented to IUCN CEC and UNESCO Asia Pacific.
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4.4 The Nordic Minister Council: Developing ESD indicators for the Regional Strategy

The Nordic Minister Council (NMC) is an organisation for formal cooperation between the governments of Denmark, Finland, Iceland, Norway and Sweden. In May 2005, subsequent to their adoption of a revised Strategy on Sustainable Development for 2005-2008, a Working Group on Indicators for Sustainable Development was appointed by the NMC. Their task included the development of ESD indicators for presentation to the NMC in June 2006.

Given that the aims of the Nordic Region were similar to the UNECE Region, the Group decided to work closely with the UNECE Expert Group to develop their indicators. The Working Group identified a set of twelve indicator questions (see Appendix 3) for the ministries of education based on 'checklist' and 'input' indicators. These indicators will be used until the end of the Strategy in 2008. Subsequently, a set of questions based on 'output' and 'outcome' indicators will be applied. ESD development will be measured by comparing the change in the answers on a yearly basis¹.

Source: Lindberg, C. (2006) *ESD-Indicators in the Nordic Minister Council's Strategy on Sustainable Development*. Unpublished.

4.5 Germany: Developing ESD indicators for the DESD National Action Plan and Formal Education

The German National Committee for the DESD is currently developing a catalogue of measures for the National Action Plan for the DESD. One of these measures is a self-evaluation mechanism to monitor achievements of official German contributions

¹ Vare (2006 new comments) states that it is useful to highlight how *change* rather than *increase* is being measured in this initiative. Often 'more' doesn't always mean 'better'

for the DESD. The official contributions must meet the following criteria: the contribution is innovative, can serve as a model to others, and be based on a complex concept of ESD (e.g. not only the environmental but the social and economic dimensions as well). In conjunction with these contributions, the German National Committee is asking stakeholders to develop a set of approximately four questions to form the basis of their self-evaluation. Stakeholders will answer these questions so that they can be compiled yearly, forming part of a monitoring report to the Committee. The purpose of the self-monitoring initiative is to encourage a learning process within the contributing organisation, as well as within the education system as a whole.

In addition, discussion on ESD indicators in the formal education sector has begun. The ESD indicators that will be developed will undertake the following functions or play the following roles as a:

- a tool for self-evaluation
- support instrument for implementation and dissemination of ESD initiatives in practice
- measurement of knowledge about, and acceptance of, ESD.

Three levels of indicators will be developed to accommodate Germany's fragmented education system:

- *Macrolevel*: indicators will take into account the educational responsibilities of German states and their relationships to the federal level. For example, indicators could include: progress in implementation efforts, ESD in central curricula and federal programs, regional and national support structures.
- *Mesolevel*: indicators will reflect measures taken to establish and stabilise ESD within educational institutions.
- *Microlevel*: indicators will reflect ESD at the classroom level. For example, indicators could be time allocated for ESD issues, forms and methods of teaching, perceived learning successes from the viewpoints of teachers and of pupils as well.

Sources:

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- c. Rode, H. (2006a) *Different indicators for different contexts? Developing indicators for ESD Germany* Presentation at the Bath Royal Literary & Scientific Institute UK, Indicators for education for sustainable development: engaging the debate, March 17th (Stimulus material for break-out groups). [Online] Available at URL <http://www.bath.ac.uk/cree/resources/esrcesd/rode.pdf> [Accessed March 27, 2006]
- d. Rode, H. (2006b) *Education for Sustainable Development, Different Indicators for Different Contexts: Developing Indicators for ESD in Germany*. Presentation at the Bath Royal Literary & Scientific Institute UK, Indicators for education for sustainable development: engaging the debate, March 17th (powerpoint). [Online] Available at URL <http://www.bath.ac.uk/cree/resources/esrcesd/rodeppt.pdf> [Accessed March 27, 2006]

4.6 European Research Project Indicators for ESD

Forum Umweltbildung (Austria), in cooperation with the University of Luneburg, is planning a European Research Project on Indicators for ESD with the purpose of developing manageable and practical sets of key ESD Indicators for Formal Education. According to the March 2006 discussion paper, the indicators developed will serve to orient education practitioners in primary, secondary and higher education to adapt their practice towards the goals and methods of education for sustainable development. In addition, a basic set of ESD indicators will be developed to bridge general characteristics expressed by the various educational levels. It has been proposed that the indicators should be developed via a participatory, interdisciplinary research and evaluation process that complies as well with the demands of education practitioners in terms of practicability, applicability and relevance. In conjunction with the development of ESD indicators, this project aims to develop a European learning community by bringing together researchers and practitioners across national boundaries.

Source: Forum Umwelt Bildung (2006) *European Research Project Indicators for ESD (IFE)*. Discussion paper March 2006.

5. Findings: Issues and Implications of the Initiatives

The recent ESD indicator initiatives provide a basis from which to analyse and identify some of the practical issues and implications of an indicator development process. Identifying and taking these issues into account is vital to advancing understanding about ESD indicators and increasing the effectiveness in which they are developed and applied. This section is divided into four questions, each highlighting a practical aspect of the indicator development process:

- Q. Who was involved in the ESD indicator development process?*
- Q. What indicator types were developed and applied? What issues underpin the various indicator types?*
- Q. How were the ESD indicators developed? What processes were undertaken?*
- Q. What are the plans for data collection? Who will be responsible for data collection?*

Each question is considered in terms of practical suggestions for the Australian indicator context, identifying the specific issues and experiences that underpin them.

Q. Who was involved in the ESD indicator development process?

It is important to determine who has coordinated these initiatives and who has been involved in other capacities. Considering the role of the various players will help to determine who might become a part of the Australian effort to develop ESD indicators. Some recommendations include:

- (i) The indicator development process should enlist support and involvement from several federal government agencies beyond the education and/or environment departments;*
 - Those who have previously participated in national indicator initiatives have stressed the above point arguing that the process cannot work without credibility or mandate from national government²⁰. The experts advise that the Australian Government is ideally situated to drive these indicator initiatives as they have the authority and resources.
 - Existing ESD indicator initiatives tend to be driven by national level environment and/or education ministries²¹. For instance, the UNECE Steering Committee on ESD, made up of government-designated representatives from environment and education sectors, played a key role in defining the indicator development process. Similarly, the UK initiative was framed by the Department for Environment, Food and Rural Affairs (DEFRA) and the Department for Education and Skills (DfES).
 - ESD experts question the general lack of involvement by social and economic government agencies in the process of identifying indicators²². Indicator development initiatives to date have limited interagency cooperation to the environment and education ministries²³. Those involved in these processes have reflected on how greater cross agency collaboration would have facilitated the collection of relevant indicator data and extended the relevance of the Decade across government²⁴.

(ii) Representatives from the state and territory government agencies need to be involved to make a national indicator initiative viable.

- In Australia's case, state and territory government agencies are involved in ESD across the sectors and often have partnership programs with the Australian Government. Involving state territory representatives from the government agencies would increase acceptance of the indicators and assist with data collection.²⁵
- Experience has indicated that those who can play a role in collecting data for the indicators should be involved in the indicator development process²⁶. State and territory government agencies are important sources of data for assessment of indicators.

(iii) A working group of stakeholders from across the social sectors should be established to assure broad support for a national indicator initiative.

- ESD indicator initiatives should involve working groups that consist of representatives from education and environment ministries at the state and national level, ESD practitioners, research or data collection experts, persons in charge of the DESD in the country or region as well as relevant NGOs (e.g European Eco-Forum representation in the UNECE initiative), inter-governmental agencies, consultants and universities²⁷.
- Identification and inclusion of cross-sectoral stakeholders (national/state & territory government departments; government/NGO) is important for transparency and acceptance of the indicator development process²⁸. Stakeholder participation across sectors and regions then becomes aligned with the principles of ESD²⁹, ensuring ownership and commitment to the implementation and monitoring of the ESD indicators.

(iv) The indicator development process should avoid dominant representation of a particular sector so as to assure accessibility and credibility of the indicator framework.

- Dominant representation of the education sector has had implications for the non-formal and informal education sectors, as primary and secondary schooling are priorities of education ministries³⁰. This influences the accessibility and relevance of the indicator framework.
- Dominant representation has had practical implications for the language of the UNECE initiative. The UNECE indicator development process was dominated by representatives from education ministries whereas the UNECE Strategy for ESD was dominated by representatives from environment ministries. Thus the language of the UNECE indicator set differs from the Strategy for ESD³¹. This influences the accessibility and implementation of the ESD indicator framework.
- In addition, the focus of the indicators themselves was on primary and secondary schooling. The UNECE Expert Group, recognising that formal sector indicators dominate their indicator set, recommended that future initiatives make a conscious effort to develop indicators for the informal

and non-formal sectors. The Expert Group considers the informal and non-formal education sectors play a vital role in advancing societal learning about sustainability³².

(v) A facilitator needs to be appointed to manage the indicator development process. This person needs to not only manage conflicting interests but also provide ways of working collaboratively and learning about monitoring and assessing ESD.

- Managing conflicting interests plays an important role in the development of ESD indicators³³. Working group interactions should be based on an ESD learning approach so that stakeholders can gain useful insights from the process and seek better ways to work collaboratively. This has implications for the capabilities of the person chosen to facilitate the indicator development process.
- Facilitation of the ESD indicator development process requires an experienced facilitator that is capable of building understanding and competence among stakeholders. The facilitator should be skilled in managing participative processes, resolving participant conflict and ensuring everyone involved in the process has a voice. He/she plays an instrumental role in ensuring the collaborative nature of the working group interactions in a learning based setting. Effective facilitation is likely to contribute to a motivated and committed group of participants that seek to advance common objectives and learning from shared experiences.³⁴
- Identifying a common objective among diverse stakeholders assists to ensure stakeholder efforts are channeled productively towards the effective development of ESD indicators. At the first meeting of the UNECE Expert Group, the Chair invited each member to say a few words on what *they* felt was particularly significant about their task of developing ESD indicators. From this dialogue surfaced the idea to emphasise the importance of learning throughout the development of ESD indicators³⁵.

Q. What indicator types were developed and applied? What issues underpin the various indicator types?

A review of the issues and implications underpinning ESD indicator types will assist the Australian Government in identifying appropriate indicators for the National Framework. It has been found that:

(i) Those facilitating the indicator development process need to clarify from the start that the task is to develop ESD indicators rather than SD, economic, social, environmental or education indicators.

- Those that have been engaged in facilitating ESD indicator development processes have highlighted the importance of clarifying, from the start, that the task is to identify progress in ESD rather than in the various components of SD³⁶. Roel van Raaij documented how a great deal of the UNECE Expert Group's time was spent discussing this difference. He pointed out how this discussion slowed down the process of identifying ESD indicators³⁷. ESD indicators, he argued, should focus on progress and change of ESD issues rather than on SD issues.

- However, developing ESD indicators is not a straightforward process. Experts have advised that there are two main approaches informing decisions about ESD indicators. Please see Section 2 and Appendix 1 for more information on these approaches and their advantages and disadvantages. Clarification of ESD indicators also needs to include consideration of the approach that best corresponds to monitoring and assessment objectives (see *pt. (ii)*).

(ii) The indicator development process needs to involve stakeholders in a learning process about: indicators, their functions, approaches, the types available to assess ESD and the language associated with an indicator framework. This gives stakeholders the opportunity to explore alternatives to the indicators that they have previously been exposed to as well as develop a common indicator language that is accessible to all.

- Australian stakeholders will come to the discussion table with different experiences and assumptions about indicators³⁸. There has been no previous stakeholder dialogue in Australia about what ESD indicators should look like. This discussion has been limited to those involved in existing ESD indicator initiatives overseas³⁹.
- Since most indicators are quantified for ease of reporting⁴⁰, people interpret indicators predominantly as quantitative in nature and are not aware of the alternatives available to assess progress in ESD. Stakeholders should be made aware of the different types of indicators available to assess progress as well as the value and limitations of each⁴¹. It also gives them an opportunity to explore alternatives to the indicators they have already been exposed to. Table 1 highlighted below can provide a platform for establishing this.
- Stakeholders involved in the development of national ESD indicators need an opportunity to learn about the language associated with indicator frameworks. This provides stakeholders with a common language in which to communicate during the ESD indicator development process⁴².
- ESD indicators that can be used to assess progress and achievements during the DESD tend fall into four broad categories²:
 - **Status Indicators:** assess variables that determine the position or standing of ESD in a country. Baseline indicator types belong to this category.
 - **Facilitative Indicators:** assess variables that assist, support or encourage engagement with ESD. Context, process and learning indicator types belong to this category.
 - **Effect Indicators:** assess variables relating to the initial, medium term and long term achievements during the DESD. Output, outcome, impact and performance indicator types belong to this category.

² Grouping indicators into categories and types is a practical way of assisting stakeholders to develop a common understanding about ESD indicators and their purposes. However, it is important to note that overlap between indicator types exists. Stakeholders must be aware that ESD indicators can sometimes fit into more than one category or type.

- **Communication Indicators:** communicate the results of assessment in a way that is easily accessible or facilitates communication with stakeholders and the general public⁴³. Headline and aggregate indicators belong to this category.
- The UNESCO-IUCN Asia-Pacific DESD Indicators project reviewed the various indicator types that fall into these categories and developed a table that assists with establishing a common language for discussing indicators⁴⁴. The following is an excerpt from this table and shows the indicator types that can be used to assess progress at the national level. Each type has been identified in terms of its function.

Table 1. Indicator types and their functions

Category:	Indicator Type:	Why would you use this indicator?
Status	Baseline	<i>To identify the current state of play of ESD.</i>
Facilitative	Context	<i>To identify the existence of ESD support systems (governance and institutional).</i>
	Process	<i>To identify the existence of ESD processes and activities.</i>
	Learning	<i>(i) To ensure the validity and improve effectiveness of indicators. (ii) To promote learning and reflection on ESD indicators.</i>
Effect	Output	<i>To identify the existence of resources and tools that assist with implementation and integration of ESD.</i>
	Outcome	<i>To identify increased ESD awareness, understanding & competencies.</i>
	Impact	<i>To identify the existence of medium & long term effects of ESD efforts.</i>
	Performance	<i>To identify change in the state of play.</i>
Communication	Headline	<i>To communicate change in ESD policy related efforts to policy makers or the general public.</i>
	Aggregate	<i>To communicate change associated with the state of play of ESD</i>

(Table adapted from Tilbury et al. 2006 p.35. See Appendix 6 for full description of the indicator types and examples.)

- Alternatively, rather than developing an array of indicator types, John Huckle offered the UK Sustainable Development Commission six approaches to an ESD indicator based on six overlapping rationales of ESD. In particular, the approaches use outcomes from a variety of sustainable education approaches as a way of identifying ESD indicators, for example: the sustainability literacy approach; the sustainable schools approach; the citizenship survey approach; the action research approach; the frame of mind

approach; and the dilemma approach (see Section 4, p.9 for more information)⁴⁵.

(iii) The working group needs to be briefed so that the indicator development process goes beyond traditional indicator types to recognise the potential of innovative indicators in assessing the quality of learning and degree of social change.

- Varying stakeholder backgrounds result in differing ideas of what constitutes an indicator. For instance, the statisticians amongst the UNECE Expert Group questioned the Group's use of checklists and questions as ESD indicators⁴⁶, whilst the ESD experts in the Group called for case study data to be used as a source for indicator assessment.
- Experts highlight that 'not everything that counts can be counted' and that ESD processes favour qualitative rather than quantitative indicators⁴⁷. This is highlighted by the fact that the UNECE Expert Group found little use for quantitative indicators. In particular, 45 of the sub-indicators they developed were qualitative⁴⁸.
- The facilitator of the indicator development process needs to respond to calls for traditional versus innovative processes for indicator development. The perception exists that greater accuracy of data can be achieved from the grounding of indicators in traditional methods which are mostly quantitative in nature. Whether this is true or not, it is important to note that the value of these methods is limited to providing information about inputs rather than changes sought as an outcome of ESD. Recognising the potential use of more innovative and qualitative indicators is needed to assist in assessing quality of learning and degree of social change⁴⁹. The facilitator of the process therefore must be able to cultivate this innovation and advance understanding about ESD indicators⁵⁰.
- A key example relates to the South African Indicators for a Learning Region initiative (see Appendix 3). Walters writes that the initial intention to produce preliminary indicators through participatory processes was made difficult by simultaneous economic policy developments that created pressure to make the indicators more obviously connected to the emerging micro-economic development strategy. Economists in the group began to express a need for more conventional, internally comparable, economic human development data. Other stakeholders argued the importance of trying to cover new developmental ground and establishing legitimacy for new indicators for which there was no data⁵¹. This difference in opinion stalled the process.

(iv) Assess progress in ESD by using a set of indicators rather than one single indicator.

- Experts have warned against using single indicators to assess progress in ESD. The UNECE Expert Group prepared a set of indicators and stated that no single indicator or sub-indicator should be seen as indicative of quality in its own right. Rather it is the combination of answers that will indicate the state of progress in, and effectiveness of, implementing the Strategy for ESD. The change associated with a set of ESD indicators provides a more meaningful indication of progress⁵². In addition, a set provides an opportunity

to include a range of different indicator types and thereby provide more meaningful information to Australian stakeholders during the DESD.

(v) *Indicators that encourage research and learning in practice need to be developed.*

- ESD experts and practitioners are seeking ESD indicators that assist in the development of good practice and advance learning rather than establish benchmarks or determine performance⁵³. Traditional use of indicators supports measurement of performance. This can be useful in determining the existence or impact of government strategies/support structures⁵⁴. However, in the spirit of ESD and learning, experts have asked: Can we build an approach to 'indicators' that promotes reflection on practice rather than simply hitting targets?⁵⁵
- Vare has noted how a learning approach to indicators helps to identify *how* to achieve a target. For example, a relevant input indicator might be: 'research taking place'. Subsequently, stakeholders can use the *results* of this research to describe the outputs⁵⁶.
- Engaging ESD stakeholders and practitioners in learning can take place during the following processes:
 - indicator development
 - data identification
 - data reporting
 - review and revision of indicators⁵⁷.

Roel van Raaij points out that the development of subcategories for key indicators can be a means of further stimulating ESD activities and learning⁵⁸.

- The UNECE Expert Group agreed that learning was an important part of the ESD indicator development process and in the application of the indicators themselves. They promoted higher level learning in the following ways by:
 - suggesting that institutions and learners set their own SD indicators
 - providing spaces to complete tables rather than checking off exhaustive lists
 - providing opportunities for respondents to state what they think their achievements will be over the next reporting period and what they think of these indicators and whether they should be modified⁵⁹.
- The UNESCO-IUCN Asia-Pacific DESD Indicators Project provided stakeholders in the region with an opportunity for learning (see Section 3, pg. 10). Rather than developing specific ESD indicators for countries in the region, the project produced a set of guidelines that will assist nations in developing their own national ESD indicators⁶⁰. The Australian Government is in a position to benefit from the guidelines when developing a national framework of ESD Indicators. The guidelines approach is more flexible and provides practical information about indicators and the indicator development process. Effective guidelines support countries to develop relevant and meaningful indicators that are reflective of their own national priorities and goals for the DESD⁶¹.

- National stakeholders should be encouraged to participate in the development process in order to further extend learning and experience in the area of ESD indicators. Members of the UNECE Expert Group documented that it is important for indicators to raise consciousness in relation to the need for multi-stakeholder involvement at the policy and implementation level. In addition, they noted that indicators should promote opportunities for learning on the part of individuals and group learners. This could be based on evidence that groups (classes/community groups/work-based teams etc.) have discussed and developed their own set of indicators on SD⁶².
- Multi-stakeholder dialogue and participation during the ESD indicator development and data collection processes encourage learning through the sharing of different value judgments about ESD. Different perspectives challenge the way in which stakeholders think about effective implementation of ESD enabling further understanding and building of knowledge about ESD indicators⁶³.

(vi) An indicator framework needs to be able to communicate the essence to stakeholders and not appear too intimidating⁶⁴.

- The indicator framework should be straightforward and understandable in order to make it accessible to all stakeholders⁶⁵. Both the UNESCO-IUCN CEC and UNECE indicator initiatives learnt that few stakeholders involved in the development process have indicator or monitoring backgrounds. In order for all stakeholders to participate, the indicator development process and the final framework need to be accessible to all backgrounds and levels of knowledge⁶⁶. This is also important for the communication of results.

(vii) The total number of indicators needs to be a manageable number. Identifying a core set of indicators is a good way to proceed.

- Experts advise that indicators be kept to a minimum by establishing a core set of indicators. It is common to develop large numbers of indicators but the application of all is neither realistic nor effective⁶⁷.
- The UNECE Expert Group initially identified 80 indicators to measure the implementation and effectiveness of the Strategy for ESD. The Expert Group was asked to reduce the number of indicators to allow for a more effective reporting process. Subsequently they produced a set of 18 indicators with 48 sub-indicators consisting of a variety of quantitative and qualitative indicators⁶⁸.

(viii) Develop relevant criteria with which to assess the suitability of indicators.

- Huckle identifies eight criteria that can be used to assess the suitability of indicators developed: validity, reliability, simplicity, objectivity, cost, equal opportunities, good practice, and government policy⁶⁹. Similarly, the UNECE Expert Group on indicators identified characteristics of effective indicators as: relevant, easy to understand, representative, reliable and measurable against feasible costs⁷⁰.

- In order to be useful, stakeholders must agree on the specific definitions of criteria such as reliability and validity. In additions, consideration should be given to those criteria which are more important than others.

(ix) Encourage and invite ESD practitioners to use indicators for self-assessment⁷¹

- Self-assessment is a way of enhancing participation and the value of indicator sets. Considered not to be just another important way of encouraging participation⁷² but also a way of learning among participating organisations⁷³, the self-assessment approach was highlighted as an important part of Germany's initiative and as a component of the UNECE indicators reporting format (See Appendix 4). Experts highlight the increased potential for innovation within self-assessment initiatives⁷⁴.
- However, there also might be reason for concern with self-assessment initiatives. For instance, Potter notes that issues in regard to trust can potentially undermine the results of the assessment⁷⁵. Success depends on the interest and commitment of participating organisations and very probably the enthusiasm of specific individuals within the group⁷⁶.

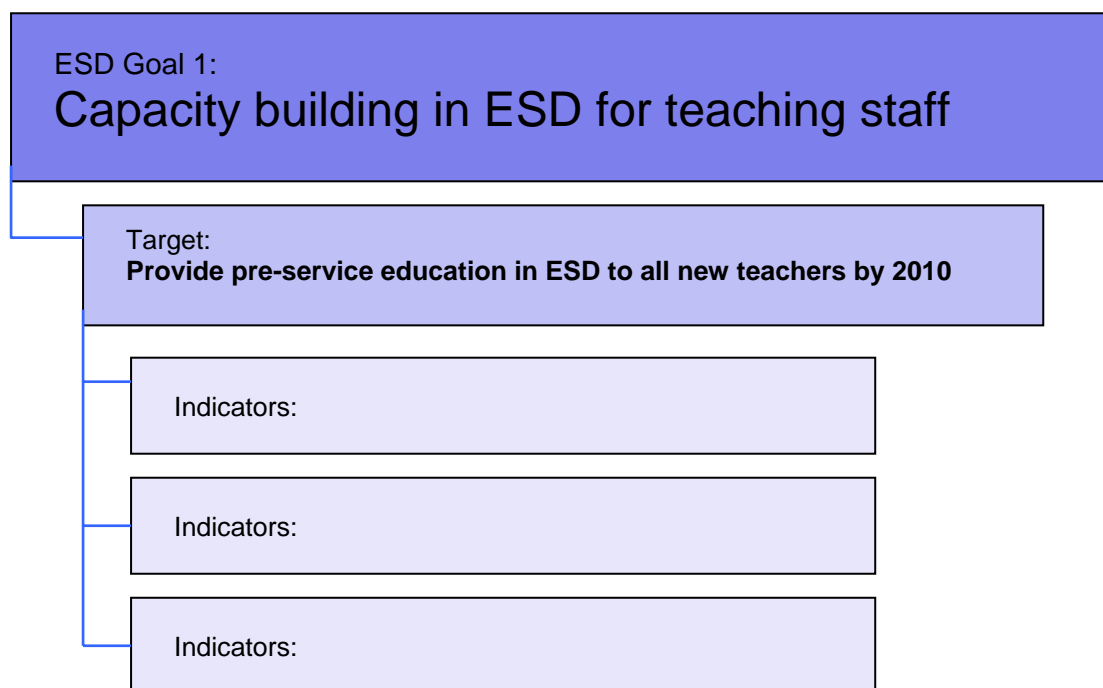
Q. How were the ESD indicators developed? What processes were undertaken?

A review of the processes undertaken helps to identify the challenges and practical implications that may surface during the development of ESD indicators. This information assists the Australian Government in avoiding ineffective processes that challenge the development of a relevant and meaningful National Framework of ESD Indicators.

(i) Set clear targets for the DESD before the indicator development process begins.

- Those involved in the ESD indicator development process have often stated the importance of establishing clear ESD targets from which to begin developing indicators⁷⁷. This assists to focus the indicator development process and provide a common basis from which to develop meaningful indicators⁷⁸.
- Experiences have shown that the development of ESD indicators is often related to the introduction of a policy strategy at the national or international level, e.g. an ESD strategy or DESD national action plan⁷⁹. These have clearly identified goals and/or targets. For example: the UNECE Steering Committee for ESD provided the Expert Group with a framework that corresponded to the objectives of the ESD Strategy. Constructing indicators thus became a straightforward process of reading the ESD Strategy and asking: how can we tell if that has been done?⁸⁰
- Targets that have specific information, eg. numbers or percentages to achieve and dates by which to achieve, facilitate the development of indicators⁸¹. However, targets can also come in the form of a vision. The latter are more often associated with ESD processes and goals. Below, Figure 1 demonstrates how goals can be translated into targets and then finally to indicators. This approach assists stakeholders to further understand the different types of indicators and identify relevant indicators for their purposes.

Figure 1: Translating ESD Goals into Indicators



(Adapted from AIMS-UIS 2006 p.3)

Examples of the different types of indicators that might be used for this target are:

Indicator Type:	Indicator Example:
Baseline	No of new teachers currently receiving pre-service training in ESD
Context	A national mandatory policy exists requiring pre-service teacher education courses to provide training in ESD to all students.
Process	All pre-service teacher education courses provide quality training on the content and pedagogy underpinning ESD.
Learning	Lessons learnt in the process of training pre-service teachers in ESD are captured.
Output	All new teachers are certified as having received pre-service training in ESD.
Outcome	All new teachers have new or improved skills and understanding in ESD.
Impact	All new teachers are practicing ESD in the classroom
Performance	Increase in numbers of new teachers receiving pre-service training

(Tilbury et al. 2006 p.28.)

(ii) Stakeholder engagement needs to be a central part of the indicator development process.

- In conjunction with the formation of an ESD indicator working group, most initiatives developed participatory processes for the engagement of additional stakeholders. Genuine participation in the indicator development experience is seen as essential to building people's abilities and empowering learners⁸².

- Genuine participation is also vital for enabling proper implementation of ESD indicators. Stakeholders are more likely to be committed to implementation when they are involved in a transparent process where they can see the value of what is being done and the role that they can play⁸³.
- Much has been written about how to engage stakeholders in ESD processes including the development of ESD national strategies. For example: processes should be participatory, involve capacity building for decision making, be transparent, involve bottom-up and top-down approaches, and be facilitated (see Appendix 7). This guidance can also be useful to those constructing an indicator development process.
- Stephen Sterling, with subsequent input from John Huckle, has identified a series of questions to guide the development of the ESD indicators⁸⁴. These may assist stakeholders in creating an appropriate and effective process that reflects ESD principles:
 - Is there open acknowledgement of what this process will involve and how stakeholders can participate?
 - Is the purpose of the indicator set explicit or implicit? Has it really been thought through? Whose interests does the indicator set serve?
 - Is there recognition that ESD is not just a matter of provision and inputs but also of shifts of perception, meaning and critical understanding in culture?
 - Is there an assumption that manifestations of ESD must be comparable between different situations, or is diversity and heterogeneity welcomed?
 - Is there recognition that change is not necessarily a simple linear process? Does it encourage discussion and debate of a range of theories?
 - Is there space for non-Western, non-scientific and other cultural views of what ESD entails or could entail?
 - Is there sufficient emphasis on learning throughout and across all areas of interest? Who determines these areas of interest and how they are interpreted?
 - Is there a distinction made between ordinary learning (first order learning in systems terms) and higher order learning (sometimes called deep learning)?
 - Is the pedagogic model favoured here implicitly instructive (dominant view) or constructive?
 - Do the educational outcomes favour a 'skill set' or a change in consciousness?
 - Is there recognition of the need for participative self-determination of indicators at the local level? Are learners enabled to develop their own indicators?
 - Are the indicators over-detailed and specific - or general and not too specific (to allow for local interpretation, learning and creativity)?
 - Ultimately, is any particular set of indicators likely to foster learning and innovation, or simple compliance?
 - Is there in-built recognition that any indicator set will need ongoing critique, evaluation and revision to keep it relevant and helpful?

(iii) The facilitator of the indicator development process needs to be aware and expect stakeholders to have diverse interests and perspectives. These might create conflicts that can be potentially detrimental to the process³.

- Tensions among the stakeholders in the UNECE Expert Group related to the diversity of professional interests represented⁸⁵. These tensions affected the smooth functioning of the ESD indicator development process, often disrupting dialogue and changing the focus of the discussion. This reinforces the need for a facilitator with conflict resolution skills and an awareness of existing power relationships and cultural issues⁸⁶ who can manage stakeholder participation during the process.
- Engaging participants in the development of effective indicators requires the facilitator to give participants opportunities to build knowledge collaboratively through dialogue and negotiation. A learning process should be used by the facilitator to manage participation of those involved in the working group⁸⁷.

(iv) The facilitator of the indicator development process needs to work transparently and with a clear brief. This is critical to the success of the initiative.⁸⁸

- The facilitator of the indicator development process should articulate the primary goal of the working group throughout the process and should be capable of focusing the group on timelines and practical deliverables⁸⁹. In support, the driver of the indicators process, in the Australian case the Australian Government, should provide a clear mandate for the project. Roel van Raaij, the facilitator of the UNECE indicator process, identifies this mandate as critical to the success of the project.

Q. What are the plans for data collection? Who will be responsible for data collection?

It is important to determine how data will be collected and who will be responsible for its collection. Considering the range of issues associated with data collection is essential for determining the most appropriate and effective data collection methods for the Australian National Framework of ESD Indicators. However, the initiatives reviewed by this study are yet to engage in data collection. Experiences and findings are limited at this stage.

(i) Data collection needs to begin as soon as possible and efforts should be made to collect new descriptive data in innovative ways.

- Most countries will have little existing data available that can be used for reporting purposes. ESD indicators require finding *innovative* ways to collect *new* data. Those involved in the UNECE initiative are exploring the use of case studies as a way of capturing data⁹⁰.
- Those who have been involved in developing ESD indicator frameworks encourage the collection of baseline data from the beginning⁹¹. This enables change to be monitored in a more systematic way. However, it has also been noted that data collection should not begin early on at the expense of multi-

³ Potter (2006b) highlighted that conflict can be productive in bringing issues to the surface when it is managed and channeled into something more constructive.

stakeholder involvement. Stakeholder involvement is vital to effective decision making about what types of data should be collected and how⁹².

- In line with ESD principles on participation and engagement, ESD experts advise that data collection should involve a broad range of stakeholders across sectors and levels. However, it is important to consider how this should be managed as it may be problematic for the validity or reliability of the data. Little ESD indicator experience exists to date to provide advice in this area.
- Data collection and reporting go hand in hand. They assist to identify where one would go for the data as well as how to put it into a meaningful form. The UNECE Expert Group developed a reporting format for the ESD indicators that measures the implementation and effectiveness of the Regional Strategy for ESD. The reporting format includes a detailed template of indicators and data collection sources (see Appendix 4). The data is to be collected at appointed ESD national focal points and passed on to the UNECE Steering Committee⁹³. A template, document (Guidance on Reporting) was created to assist with this process but it is still to be formalised. The document includes information on data collection methodologies and procedures⁹⁴. The approach of the UNECE region is one in which they clarify the purpose of the indicator and the key target groups that can assist with collecting data and reporting. This assists with implementation of the indicator framework.
- Developing a common reporting format is a useful way of gathering and presenting information. It also facilitates comparison across initiatives⁹⁵.

(ii) Data collection should utilise existing data capture opportunities.

- Although experts advise that there is no existing data which can be used for ESD indicators⁹⁶, they agree that data collection should utilise existing data capture opportunities.⁹⁷ They encourage stakeholders to consider existing data collection initiatives for reports in related areas such as education, economic, social and environment fields.⁹⁸
- Existing experiences with data collection and reporting may provide useful information to the ESD indicator development and application process. For example, the Australian National Audit Office and Department of Finance have published a best practice document that includes information on key concepts, characteristics of good practice, and criteria for reporting⁹⁹.
- State and territory government agencies should assist ESD indicator development by providing important data. Existing data collection initiatives involve a variety of different stakeholders. State and territory based input into the data collection and indicator development process is vital¹⁰⁰.
- In general, many different data collection methods exist. Stakeholders need to consider the most appropriate quantitative and qualitative methods that will support each ESD indicator developed.

Methods of data collection	
Quantitative data	Qualitative data
<ul style="list-style-type: none"> ○ Administrative data collection <ul style="list-style-type: none"> · financial data · performance data · resource allocation · school census ○ Surveys & questionnaires <ul style="list-style-type: none"> · door to door · election-type polls · national census · phone interviews · school/teacher 	<ul style="list-style-type: none"> ○ Case studies ○ Content Analysis ○ Focus groups ○ Interviews (individual, community) ○ Observations ○ Research (action research) ○ School inspections (formal ed.) ○ Story telling

(Tilbury et al. 2006)

Some questions that might be helpful in choosing appropriate data collection methods might be:

- How readily accessible is the data collected from this method?
- Which method is more time and cost effective?
- Is data collected with this method appropriate for this indicator?
- Will data collected with this method be accurate?
- Will data collected with this method be reliable (e.g. comparable over time)?
- How effective is this method for collecting data in hard-to-reach or sparsely populated areas?¹⁰¹

(iii) Network with others involved in national indicator data collection initiatives. Their experiences can be valuable in guiding the Australian initiative.

- As mentioned previously, there are currently no data collection experiences for ESD indicators at the national level. However, plans are beginning to take shape for this to happen in Europe, North America and the Asia-Pacific region. Establishing contacts with the facilitators or managers of these initiatives and networking to share experiences as indicator frameworks are implemented would be valuable.
- It is imperative that interest is expressed in networking with others involved in ESD indicators. Australia's interest in the processes evolving in other countries can stimulate the continuation of similar initiatives. Existing initiatives are still young and therefore in danger of being killed off politically. By joining in and raising the profile of the other initiatives, Australia helps to legitimise them and reduce their vulnerability⁴¹⁰².

⁴ The US is currently trying to remove ESD as a priority area of the Environment for Europe process. It is therefore helpful for other international actors to take an interest and 'witness' this.)

(iv) *Encourage capacity building in ESD indicators and data collection.*

- Capacity building should take place to enable key stakeholders to effectively use the indicator framework and assist with the collection of data. In August 2006 at the Review Meeting of the Guidelines for National DESD Indicators participants noted that training should incorporate the following topics¹⁰³:
 - identifying common targets in ESD
 - key concepts associated with data collection and reporting (e.g., qualitative and quantitative data)
 - specific methods used for data collection for ESD
 - strategies for monitoring, analysis and dissemination of information (*for trainers*)
 - rules and ethics of data collection
 - responsibilities of reporting.

6. Recommendations arising out of Key Learnings

These recommendations are informed by the findings of the study and arise out of the key learnings listed above.

Participation

- *The indicator development process should enlist support and involvement from several Australian Government agencies beyond the education and environment departments.*
- *Representatives from the state and territory government agencies need to be involved to make a national indicator initiative viable.*
- *A working group of stakeholders from across the social sectors should be established to assure broad support for a national indicator initiative.*
- *The indicator development process should avoid the dominant representation of a particular sector to assure accessibility and credibility of the indicator framework.*
- *A facilitator needs to be appointed to manage the indicator development process. This person needs to not only manage conflicting interests but also provide ways of working and learning collaboratively about monitoring and assessing ESD.*

ESD Indicators

- *Those facilitating the indicator development process need to clarify from the start that the task is to develop ESD indicators rather than SD, economic, social, and environmental or education indicators.*
- *The indicator development process needs to involve stakeholders in a learning process about: indicators, their functions, approaches, the types available to assess ESD and the language associated with an indicator framework. This gives stakeholders the opportunity to explore alternatives to the indicators that they have previously been exposed to as well as develop a common indicator language that is accessible to all.*
- *The working group needs to be briefed so that the indicator development process goes beyond traditional indicator types to recognise the potential of innovative indicators in assessing the quality of learning and degree of social change*
- *Progress in ESD should be assessed by using a set of indicators rather than one single indicator.*
- *Indicators that encourage research and learning in practice need to be developed.*
- *An indicator framework needs to be able to communicate its essence to stakeholders and not appear too intimidating.*
- *The total number of indicators needs to be a manageable number. Identifying a core set of indicators is a good way to proceed.*
- *Relevant criteria need to be developed to assess the suitability of indicators.*
- *ESD practitioners should be invited and encouraged to use indicators for self-assessment.*

Process

- *Set clear targets for the DESD before the indicator development process begins.*
- *Stakeholder engagement needs to be a central part of the indicator development process.*
- *The facilitator of the indicator development process needs to be aware and expect stakeholders to have diverse interests and perspectives. These might create conflict that can be potentially detrimental to the process.*
- *The facilitator of the indicator development process needs to work transparently and with a clear brief. This is critical to the success of the initiative.*

Data Collection:

- *Data collection needs to begin as soon as possible and efforts should be made to collect new descriptive data in innovative ways.*
- *Data collection should utilise existing data capture opportunities.*
- *Network with others involved in national indicator data collection initiatives. Their experiences can be valuable in guiding the Australian initiative.*
- *Encourage capacity building in ESD indicators and data collection.*

The assumptions underpinning these recommendations are:

- *Clear DESD targets exist to guide the indicator development process*
- *The Australian Government has the resources and leadership to lead an ESD indicator process.*
- *State and territory governments, as well as national stakeholders have the time and motivation to be involved in the indicator development process.*
- *Cross-sectoral interest in the ESD exists and a basis for consensus on ESD and indicators can be reached.*
- *An adequately qualified facilitator exists to facilitate the process and works to ensure a transparent, participatory and learning process.*
- *Sufficient time and resources are given to the development of an ESD Indicator Framework. In particular, allowing time for learning and adaptation.*
- *Time is given to pilot indicators developed and to revising indicators as per practical experiences.*

7. Summary

'Not everything that counts can be counted'¹⁰⁴,

Indicators are becoming one of the most commonly applied and promoted monitoring and assessment strategies in ESD¹⁰⁵. Among a variety of functions, they play an important role in influencing policy making for ESD¹⁰⁶. Recent experiences in ESD indicators have been limited in scope. However, it is becoming evident that well managed indicator development processes maximise learning about ESD and indicators and address conflicting interests amongst the stakeholders¹⁰⁷.

This document reviews the experiences and lessons learned in the development of ESD indicators. Several key questions are used to structure the analysis:

- Q. Who was involved in the ESD indicator development process?
- Q. What indicator types were developed? What issues underpin the various indicator types?
- Q. How were the ESD indicators developed? What processes were undertaken?
- Q. What are the plans for data collection? Who will be responsible for data collection?

The research found that countries and regions in Europe, North America and the Asia-Pacific have begun to develop ESD indicators for the Decade in response to a particular ESD strategy or action plan. The indicator initiatives, driven mostly by national government agencies, are mainly being developed through a process involving cross-sectoral Working Groups. These groups are engaged in the development of indicators which point to good practice and advancing learning rather than simply establishing benchmarks or determining performance. Learning has been identified as an essential component of the ESD indicator development process.

The study identifies four main indicator types: status, facilitative, results and communication. These are distinguishable by their focus on different ESD variables relating to progress. They seek different types of data and provide insight at differing levels of implementation. Providing opportunities for key stakeholders to learn about the various indicator types and their relative value is important to the success of any national indicator initiative. Similarly, developing a common language for communicating about ESD indicators is an important step in the indicator development process. Consensus from the beginning assists to ensure that the process is not stalled at a later time.

Data collection for ESD indicators is considered to be a difficult task, as there is little experience available to learn from and existing data that is useful to the ESD reporting process. Experience suggests that data collection should begin as soon as possible and efforts should be made to collect new descriptive data in innovative ways.

However, the ESD indicator initiatives reviewed in this study are still in their early stages. Thus the recommendations presented in this report are limited by lack of experience in the later stages of the development process. Establishing regular contact with key players from the overseas ESD indicator initiatives could be valuable. None of the initiatives studied had undertaken the collection of ESD data or reported on progress at the national level. Much is yet to be learnt about these processes.

Endnotes:

- ¹ UNESCO (2005a)
- ² UNESCO Asia and Pacific Regional Bureau for Education (2005a)
- ³ Vare (2006d)
- ⁴ Vare (2006a)]
- ⁵ Tilbury and Cooke (2005)
- ⁶ Vare (2006d)
- ⁷ Reid et al. (2006)
- ⁸ Gallopin (1997)
- ⁹ UNECE EG (2005)
- ¹⁰ Eder (2004)
- ¹¹ Gallopin (1997)
- ¹² Eder (2004); and Tilbury et al. (2006)
- ¹³ Adapted from Gallopin (1997); UNECE Expert Group (2005); and Rode (2006)
- ¹⁴ Tilbury et al (2006)
- ¹⁵ Gallopin (1997)
- ¹⁶ van Raaij (2006)
- ¹⁷ Huckle (2006f); Sterling (2006c); and Vare (2006a)
- ¹⁸ van Raaij (2006)
- ¹⁹ Sterling (2006c)
- ²⁰ UNESCO (2006)
- ²¹ See Section 4
- ²² Potter (2006a)
- ²³ See Section 4; and van Raaij (2006)
- ²⁴ van Raaij (2006)
- ²⁵ Potter (2006a)
- ²⁶ Potter (2006b)
- ²⁷ See Section 4
- ²⁸ Tilbury et al. (2006); and van Raaij (2006)
- ²⁹ Tilbury and Cooke (2005)
- ³⁰ Potter (2006a)
- ³¹ Vare (2006c)
- ³² UNECE Committee on Environmental Policy (2006a); and van Raaij (2006)
- ³³ Van Raaji (2006)
- ³⁴ Tilbury and Cooke (2005)
- ³⁵ Vare (2006c)
- ³⁶ UNECE Committee on Environmental Policy (2006a); and Huckle (2006e)
- ³⁷ van Raaij (2006)
- ³⁸ van Raaij (2006)
- ³⁹ See Section 3
- ⁴⁰ AIMS-UIS (2006)
- ⁴¹ Tilbury et al. (2006); and van Raaij (2006)
- ⁴² van Raaij (2006)
- ⁴³ Janousek and Tilbury (2006) in Tilbury et al. (2006)
- ⁴⁴ Janousek and Tilbury (2006) in Tilbury et al. (2006)
- ⁴⁵ Huckle (2006b)
- ⁴⁶ Vare (2006a)
- ⁴⁷ van Raaij (2006)
- ⁴⁸ UNECE Committee on Environmental Policy (2006a)
- ⁴⁹ Huckle (2006e); Sterling (2006a); van Raaij (2006); and Vare (2006c)
- ⁵⁰ van Raaij (2006)
- ⁵¹ Walters (2006)
- ⁵² UNECE Committee on Environmental Policy (2006a)
- ⁵³ van Raaij (2006)
- ⁵⁴ Potter (2006b)
- ⁵⁵ Vare (2006b)
- ⁵⁶ Vare (2006d)
- ⁵⁷ UNESCO (2006); Tilbury et al. (2006); van Raaij (2006); and Vare (2006a)
- ⁵⁸ van Raaij (2006)
- ⁵⁹ Vare (2006a)
- ⁶⁰ Tilbury et al. (2006)
- ⁶¹ Vare (2006c)
- ⁶² Vare (2006a)
- ⁶³ Potter (2006b); and Tilbury and Cooke (2005)
- ⁶⁴ UNESCO (2006)
- ⁶⁵ UNESCO (2006)
- ⁶⁶ UNESCO (2006); and van Raaij (2006)
- ⁶⁷ UNECE Committee on Environmental Policy (2006a)
- ⁶⁸ UNECE Committee on Environmental Policy (2006a)
- ⁶⁹ See Section 4
- ⁷⁰ UNECE Expert Group (2005)

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- ⁷¹ UNECE Committee on Environmental Policy (2006a); and van Raaij (2006)
⁷² Potter (2006a)
⁷³ Rode (2006a; and 2006b)
⁷⁴ Huckle (2006e)
⁷⁵ Potter (2006a)
⁷⁶ Vare (2006c)
⁷⁷ AIMS-UIS (2006); Expert Team (2006)
⁷⁸ AIMS-UIS 2006; Tilbury et al. (2006); and van Raaij (2006)
⁷⁹ UNESCO (2006)
⁸⁰ Vare (2006c)
⁸¹ AIMS-UIS (2006)
⁸² UNESCO (2006)
⁸³ Potter (2006b)
⁸⁴ Huckle (2006e); and Sterling (2006a)
⁸⁵ Vare (2006c)
⁸⁶ Tilbury and Wortman (2004)
⁸⁷ Tilbury and Cooke (2005)
⁸⁸ van Raaij (2006) – question and answer session
⁸⁹ van Raaij (2006); and Vare (2006c)
⁹⁰ van Raaij (2006)
⁹¹ van Raaij (2006); and AIMS-UIS (2006)
⁹² Potter (2006b)
⁹³ UNECE Committee on Environmental Policy (2006a)
⁹⁴ UNECE Committee on Environmental Policy (2006a)
⁹⁵ UNESCO (2006); AIMS-UIS (2006)
⁹⁶ Experts Team (2006); and van Raaij (2006)
⁹⁷ AIMS-UIS (2006); and UNESCO (2006)
⁹⁸ AIMS-UIS (2006); UNECE Committee on Environmental Policy (2006b); and van Raaij (2006)
⁹⁹ Australian National Audit Office and Department of Finance (n.d)
¹⁰⁰ See p. 15, Section: *Who should be involved in the process?*
¹⁰¹ Tilbury et al. (2006)
¹⁰² Vare (2006d)
¹⁰³ UNESCO Bangkok 2006b
¹⁰⁴ van Raaij (2006) (referenced from Einstein)
¹⁰⁵ Reid et al. (2006)
¹⁰⁶ Tilbury et al (2006)
¹⁰⁷ UNESCO (2006); and Tilbury et al. (2006)

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Appendix 1

The Approaches Underpinning ESD Indicator Choices

- Experts have made a distinction between systematic and systemic indicators¹. This distinction is based on the differing approaches or paradigms that can influence the function of indicators in monitoring and assessment of progress during the DESD. For instance, systematic indicators are generally used with the purpose of controlling performance and hitting predetermined targets. They tend to be detailed, quantitative, prescriptive, performance focused and generic². On the other hand, systemic indicators are used with the purpose of cultivating good practice and encouraging learning. They tend to be general, qualitative, indicative, process focused, and context specific³. These characteristics are extreme opposites of each other. It is useful to think about differing indicators approaches as lying on opposite ends of a spectrum.

The characteristics underpinning different approaches to ESD indicators:		
Indicator Characteristics:	←Spectrum→	
Specificity:	Detailed	General
Style:	Quantitative	Qualitative
Purpose:	Prescriptive	Indicative
Focus:	Performance	Process
Context:	Generic	Located
Source: Adapted from Sterling (2006a)		

- Similar to the distinction made between systematic and systemic indicators, reference has also been made to two different types of ESD in practice: *ESD 1* and *ESD 2*⁴. *ESD 1* promotes awareness about the need for change whereas *ESD 2* complements this by building capacity to challenge the mental models supporting unsustainability and encourages thinking critically about our decisions and actions. It is important for stakeholders to consider what type of ESD they are implementing and thus what type of indicators are best suited to measure progress. In other words, the key tension confronting stakeholders developing ESD indicators is whether they should develop a set which will assist primarily with identifying performance and compliance measures or with fostering learning and innovation.
- The following table lists advantages and disadvantages that have been identified for the different indicator approaches. They must be taken into account in order to make effective decisions regarding the choice of ESD indicators that will suit the needs of an Australian framework.

¹ Huckle 2006e; Sterling 2006a; and Vare 2006c

² Sterling 2006b

³ Sterling 2006b

⁴ Vare 2006c

Advantages and Disadvantages of the Differing Indicator Approaches		
	Mechanistic Indicators	Holistic Indicators
Advantages	<ul style="list-style-type: none"> -General scope, appropriate across a larger region. -Precise numbers and ratios means that the indicators are more: <ul style="list-style-type: none"> -measurable -comparable -recordable 	<ul style="list-style-type: none"> -Specific scope, more meaningful amongst a smaller region. -Descriptions and observations require greater ownership and engagement of stakeholders. These indicators seek to encourage: <ul style="list-style-type: none"> -self determination -motivating -encourage emergence
Disadvantages	<ul style="list-style-type: none"> -Technical -Numbers tend to leave out key data/information. -Emergence and creativity stifled. 	<ul style="list-style-type: none"> -Not easily transferable or compared. -Require criteria to measure meaningfully and accurately. -More difficult to compile.

Adapted from Sterling (2006a)

Appendix 2

A Summary of the Current ESD Indicator Initiatives Worldwide

What regions or countries did the project involve?	When was the ESD indicator project initiated?	What was the purpose of the project?	Who managed or led the project?	Who was involved in the project?	How were the indicators developed?	When was (will) the project finished (finish)?
UNECE Region: 55 countries in Europe and North America.	March 2005	To develop indicators that monitor (a) Member States' progress in implementing the Regional Strategy for ESD; and (b) the effects of the implementation of the ESD Strategy.	UNECE Steering Committee on ESD	Expert Group on ESD indicators: persons with experience in international environmental and educational policies, EE and ESD.	Indicators were developed directly from the objectives outlined in the Regional Strategy for ESD.	May 2006
UK	Nov 2005	To develop possible approaches for an ESD indicator that shows the impact of formal learning on knowledge and awareness of SD. This indicator was formed as a supporting indicator of a larger SDI initiative.	UK SDC for DEFRA and DfES	An ESD consultant was contracted to develop the approaches which were then assessed by members of the ESD community in the UK.	Indicator approaches were developed based on 6 overlapping rationales of ESD.	(ongoing) The approaches were presented to DEFRA and DfES in June 2006 however, no final decision has been made.
Asia-Pacific Region: (UNESCO – IUCN CEC DESD Indicators Project)	March 2006	To produce a set of guidelines to assist UNESCO national commissions and field offices with the development of national ESD indicators.	UNESCO Bangkok, MU	International ESD experts and representatives of UNESCO national commissions and field offices.	Guidelines on the process of developing indicators developed. No specific indicators were developed.	December 2006 - 1 st edition of the guidelines Next steps: 2007- piloting the guidelines and capacity building.

Nordic Region: Denmark, Finland, Iceland, Norway and Sweden	May 2005	To develop ESD indicators for 2005-2008 Strategy for Sustainable Development.	NMC	Working Group on Indicators (members to be determined)	Worked closely with UNECE EG to develop questions based on SD Strategy objectives.	Indicators presented to NMC in June 2006.
Germany	(To be determined)	To develop a self-evaluation mechanism to monitor achievements of German contributions to the DESD.	German National Committee for the DESD	ESD practitioners	ESD practitioners were asked to develop a set of approximately 4 questions to form the basis of an annual self-evaluation.	(To be determined)
Germany	(To be determined)	To develop ESD indicators for the formal education sector.	(To be determined)	(To be determined)	<i>However, indicators will be developed for the following functions: self-evaluation, to support implementation and dissemination of ESD, & to measure knowledge and acceptance of ESD.</i>	(To be determined)
Europe (European Research Project on Indicators for ESD)	March 2006	To develop manageable and practical sets of key ESD indicators for formal education. Also to develop a European learning community that brings together researchers and practitioners.	Forum Umweltbildung (Austria) and University of Luneburg (Germany)	(To be determined)	Will use a participatory, interdisciplinary research and evaluation process that complies with demands of education practitioners in terms of practicability, applicability & relevance.	(To be determined)

Appendix 3

Related Indicator Initiatives

Argentina: Indicators for an Agenda 21 School Initiative

We have recently become aware that indicators are being developed as part of an Agenda 21 Program for Schools. In particular, the indicators are concerned with three areas: sustainable management of school grounds, innovative curricula, and citizen participation. In addition, Argentina has developed a set of environmental indicators and is planning to incorporate environmental education indicators in 2007.

Source: Satostegui, G. gsatostegui@medioambiente.gov.ar (2006) [CEC-ESD] Indicadores. [email] Message sent to cec-esd@indaba.iucn.org Sent 8 June 2006.

Australia: Indicators for a Sustainable School

Indicators for the National Environmental Education Network's (NEEN) Sustainable Schools Initiative were developed by a working group and highlighted in the National Environmental Education Statement for Australian Schools. The group was comprised of representatives from national, state and territory government education and environment agencies. Indicators were developed in the following areas: education, environment, water, electricity, waste, school grounds, society and economy as a practical means of measuring certain aspects of change through the Sustainable Schools Initiative. These indicators are not considered to be a comprehensive evaluation tool.

Source: Australian Government Department of the Environment and Heritage (2005) *Educating for a Sustainable Future A National Environment Education Statement for Australian Schools*. Carlton: Curriculum Corporation

Australia: Performance Indicators for the NSW EE Plan

In line with the *Protection of the Environment Administration Amendment (Environmental Education) Act*, the New South Wales (NSW) Council on Environmental Education developed a set of performance indicators for the Learning for Sustainability Environmental Education Plan 2006-2009. In particular, the indicators allow stakeholders to: (a) assess the effectiveness of the Plan's implementation; and (b) facilitate discussion about the extent to which environmental education is meeting identified needs.

Source: New South Wales Council on Environmental Education (2005) *Learning for Sustainability NSW Environmental Education Plan 2006-09. Consultation Draft October 2005*

Australia: The Victorian Community Indicators Project

The aims of the Victorian Community Indicators Project are to develop: an agreed and comprehensive statewide framework and process for the development and use of community well-being indicators at the local government level (including economic, social, cultural, environmental, governance and democracy dimensions). With a

proposed termination date of July 2006, the Project will assist in improving citizen engagement, community planning and policy making.

Source: *The Victorian Community Indicators Project (2006) About the Victorian Community Indicators Project* [Online] URL Available at: <http://www.communityindicators.net.au/webpage/side/list-aboutProject.chtml> [Accessed 21 April 2006]

Canadian Index for Well-being

The Canadian Index for Well-being is a current Canada wide indicator initiative based on progress towards sustainable development. This index will provide 'relevant' data based on a developed understanding of Canada's economic reality and longer term prosperity by integrating information on the social, health and environmental conditions that shape Canadian communities. For example, indicators related to health prevention initiatives, clean air and water, genuine progress by Aboriginal peoples and early childhood education may form part of the index. Of particular interest to ESD is a section of indicators that will consider progress in education and learning.

Sources:

- a. Hayward, K. karenhayward@eastlink.ca, (2006) 'DESD' (online) Message to D. Tilbury. (cited 2/15/2006)
- b. <http://www.atkinsonfoundation.ca/ciw>

Cuba: National Indicators for Environmental Education

We have recently become aware of a Cuban initiative to develop environmental education indicators at the national level and are currently seeking further information.

Source: Roque Molina, M.G., marthar@ama.cu (2006) Re: [CEC-ESD] Request for Information-ESD Indicator Initiatives. [email] Message to cec-esd@indaba.iucn.org Sent 7 June 2006

Environment and Schools Initiative (ENSI)- Quality Criteria for ESD Schools

ENSI is an international decentralised network of national authorities and research institutions in Europe and the Asia-Pacific. It brings together school initiatives, school authorities, teacher training, educational research institutions and other stakeholders with a focus on cutting edge research and policy reflection in the field of ESD. One of ENSI's activities includes the three stage research program: School Development through Environmental Education (SEED). In particular, the results of the third stage, highlighted in the publication *Quality Criteria for ESD - Schools*, propose a list of quality criteria for schools that wish to work on developing ESD. The list is considered a starting point for schools and aims to facilitate discussion and reflection within the school and with all stakeholders. The discussion serves to clarify the main objectives and changes that orient school development towards ESD and to develop a list of quality criteria adapted to each school's own situation and plans for change.

Sources:

- a) Breiting, S., Mayer, M., and Mogensen, F.M. (2005) *Quality Criteria for ESD-Schools, Guidelines to enhance the quality of Education for Sustainable Development. ENSI and SEED: Austria*

- b) Mogensen, F.M. and Mayer, M. (2005) *ECO-schools: trends and divergences, A Comparative Study on ECO-school development processes in 13 countries. Austrian Federal Ministry of Education, Science and Culture, European Commission and ENSI: Austria*
- c) <http://www.ensi.org/>

European Quality Indicators of Lifelong Learning

Enhancing the quality of education, training and ultimately lifelong learning make up one of the key priorities of the European Union action program. In particular, the Quality Indicators of Lifelong Learning Initiative was borne from a previous initiative completed by a group of experts in 2000 to identify a limited number of key indicators that could assist with a national evaluation of systems in the area of school standards. In January 2001, the Indicators on Quality of Lifelong Learning Working Group began to meet with the purpose of extending the initiative to cover all areas of education and training encompassed by lifelong learning.

The Working Group included representatives from 34 European countries, the OECD, and UNESCO, among others. Indicators were developed for the following areas: skills, competencies and attitudes; access and participation; resources for lifelong learning; and strategies and systems development. In June 2002, 15 quality indicators based on criteria such as reliability, comparability, political relevance and the ability to reflect the most recent data were identified.

Source: European Commission Directorate-General for Education and Culture (2002) European Report on Quality Indicators of Lifelong Learning: Fifteen Quality Indicators. Report based on the work of the Working Group on Quality Indicators.

Italy- Quality Indicators for the Tuscan Region Environmental Education System

Between July 2003 and June 2005, ARPAT (*Agenzia Regionale per la protezione ambientale della Toscana*) (the Functional Division of Environmental Education) of the Tuscan System for Environmental Education led the Inter-Regional Project on Quality Indicators. Thirteen Italian regions undertook research with the purpose of developing quality indicators for the regional information, training and environment education (INFEA) systems.

In particular, the project worked to identify common areas of certification, a minimum set of quality indicators and methodological proposals for the creation of local indicators based on a categorical approach of 'functions served'. By examining the actions that are actually accomplished (rather than the label that actions are given) the group was able to establish a framework of common criteria within a sphere of structural and contextual diversity.

This project involved regional representatives in participatory group discussion, planning, capacity building and partnership development that began by identifying a framework of common principles and values in environmental education. Subsequently, criteria, indicators and descriptors were defined in order to create a functions-indicators matrix involving: environmental education, environmental training, support and commitment to territorial development processes, information and communication, research and evaluation and coordination. These functions were designed at the micro and macro level allowing for the development of corresponding

indicators and descriptors and ultimately assessment of INFEA systems at various organisational levels.

Source: *Agenzia Regionale per la protezione ambientale della Toscana (ARPAT) (2005) 'Inter-regional Project on Quality Indicators: to apply to regional INFEA systems', Florence: The Tuscan System for Environmental Education.*

Japan: Indicators for Community Development

In Japan, The Council on the UN Decade of ESD (ESD-J) is developing ESD Indicators for Community Development. ESD stakeholders in different Regional Centres of Expertise will be interviewed and an ESD case study will be published. Subsequently, an analysis of the case study will assist in the identification of ESD indicators.

Source: Noguchi, F. fumiko@esd-j.org (2005) 'ESD Indicators' [online] Message to D. Tilbury (sent 17/10/05)

Mexico: Indicators for Assessing University Contributions to Sustainable Development

Held in 2001, a national workshop on The Development of Indicators for the Evaluation of Sustainability in Universities took place at the University of Guadalajara. The workshop, proposed by the University with support from a number of organisations including the Consortium of University Environmental Programs for Sustainable Development, formed part of the Action Plan for Sustainable Development in Higher Education Institutions (an initiative of the National Association of Higher Education Universities and Institutions - Anius and the Secretary of Environment and Natural Resources - Semarnat). The aim of the workshop was to identify and agree on inter-institutional themes that had promoted the advancement of SD in universities during the last 10 years and then use these to develop sustainability indicators for Mexican higher education institutions. The indicators were directed towards representatives of university environmental programs for sustainable development and academic staff. The chosen indicators reflected a series of quality criteria and covered four areas within the university: science, technology, education and interaction with civil society. The indicators developed were piloted during subsequent years and a publication on the experience is due out in 2006.

Sources:

- a) deVincCi (2002) *Indicadores de Primera Generacion Para Medir Los Aportes de las Universidades Al Desarrollo Sustentable. Num 8. 22*
- b) Curriel, A., arturoc@redudg.udg.mx (2006) Re: [CEC-ESD] Request for Information- ESD Indicator Initiatives [email] Message to cec-esd@indaba.iucn.org Sent 8 June 2006

The Netherlands: Auditing Instrument for Sustainability in Higher Education

Following a request of the Dutch Committee for Sustainable Higher Education, the Working Group on Criteria was formed with the aim of developing an Auditing Instrument for Sustainability in Higher Education (AISHE). The AISHE methodology has been developed for managers and experts, as well as teaching staff, for use in

quality management, didactics and sustainable development. The auditing mechanism may be used for both internal and external sustainability auditing.

Source: Roorda, N. (2001) *Auditing Instrument for Sustainability in Higher Education: English Text*.

South Africa: Researching Indicators for a Learning Region

A preliminary research project was undertaken to identify indicators for a learning region in the Western Cape Province, South Africa. The study was set up by the provincial Department of Economic Development and involved a case study approach which took place in two phases. In Phase One, an in depth analysis of a month long mini-festival (part of a larger learning festival) was undertaken. In Phase Two, a four month long project was undertaken to develop a framework for indicators for the learning region. This last phase included analysing indicators in the international literature; investigating relevant data sources; interacting with informants in key sectors; and reporting on it. In particular, the research group considered the following questions: what are indicators?; what is their purpose?; and what is a learning indicator? The project focused on three areas: initial learning, adult learning and diffuse learning environments.

The project is currently on hold as the research group encountered a number of challenges during the second phase. In particular, some of the issues that surfaced included: difficulties working with people trained in different backgrounds; agreeing on the purpose and content of the indicators; ownership of the indicators and responsibilities of the researchers; and the timeframe.

Source: Walters, S. (2006) *Researching indicators for a learning region*. Paper presented at the 36th Annual SCUTREA Conference, 4-6 July 2006, Trinity and All Saints College, Leeds. [Online] Available at URL <http://www.leeds.ac.uk/educol/documents/155405.htm> [Accessed 18 July 2006].

Spain: Sustainability Indicator Report

We have recently become aware of a Spanish 'think tank' responsible for an Annual Indicator Report on Sustainability. In particular, the 2007 edition will include a set of ESD and environmental education indicators. We are currently looking for more information about this project.

Source: Benayas del Alamo, B., Javier.benayas@uam.es. (2006) *UNESCO-IUCN CEC DESD Indicators Project [online] Message D. Tilbury and S. Janousek (sent 29/4/06)*

UK: Sustainable Schools Assessment Consultation

In May 2006 the Department for Education and Skills (DfES) began a consultation on sustainable schools. Schools will in future be encouraged to use a common framework to assess their provision and progress as sustainable schools. Moreover, their assessments, and/or those of the schools' inspection service (OFSTED) may be used to yield an indicator of education for sustainable development.

Source: <http://www.dfes.gov.uk/consultations/conDetails.cfm?consultationId=1398>

Appendix 4

UNECE EG Draft Reporting Format and Indicators 27 June 2006

Source: UNECE Committee on Environmental Policy 2006b

REPORTING FORMAT

Issue for reporting / Indicator / Sub-indicator	
OBJECTIVE 1. ENSURE THAT POLICY, REGULATORY AND OPERATIONAL FRAMEWORKS SUPPORT THE PROMOTION OF ESD	
<i>If necessary, provide relevant information on your country situation regarding this specific objective. (up to 1500 characters with spaces)</i>	
Indicator 1.1 Prerequisite measures are taken to support the promotion of ESD	
Sub-indicator 1.1.1	Is the UNECE Strategy for ESD available in your national ³ language(s)?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify languages.</i>
Sub-indicator 1.1.2	Have you appointed a national focal point to deal with the UNECE Strategy for ESD?
Yes <input type="checkbox"/> No <input type="checkbox"/>	
Sub-indicator 1.1.3	Do you have a coordinating body for implementation of ESD?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify its mandate and coordinating mechanism. Please also specify whether its mandate covers implementation of the UNECE Strategy for ESD.</i>
Sub-indicator 1.1.4	Do you have a national implementation plan for ESD?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify whether this plan includes implementation of the UNECE Strategy for ESD.</i>
Sub-indicator 1.1.5	Are there any synergies at the national level between UNECE ESD process, the UNESCO global process on the UN Decade of ESD ⁴ , and other policy processes relevant to ESD?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify.</i>
Indicator 1.2 Policy, regulatory and operational frameworks support the promotion of ESD	
Sub-indicator 1.2.1	Is ESD reflected in any national policy ⁵ document(s)?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify and list major document(s)</i>
Sub-indicator 1.2.2	Is ESD: (a) addressed in relevant national education legislation/regulatory document(s); and (b) included in your national curricula and/or national standards/ ordinances/ requirements; at all levels of formal education, as understood by your education system in accordance with ISCED ⁶ ?

³ For countries with a federal governmental structure, all references to “national” apply to “State”, as appropriate In this context, data at national level means an aggregated data received from sub-state entities.

⁴ The United Nations General Assembly proclaimed in its resolution 57/254 of 20 December 2002 the-year period beginning on 1 January 2005 the United Nations Decade of Education for Sustainable Development.

⁵ Policy documents may include national strategies, plans, programmes, guidelines etc..

⁶ International Standard Classification of Education (ISCED), UNESCO, 1997 (http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm)

Yes <input type="checkbox"/> No <input type="checkbox"/>	<p><i>Please specify for (a) and (b). Fill in the table by ticking (X) as appropriate.</i></p> <table border="1" data-bbox="952 284 1541 630"> <thead> <tr> <th rowspan="2">ISCED⁷</th> <th colspan="2">(a)</th> <th colspan="2">(b)*</th> </tr> <tr> <th>Yes</th> <th>No</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>0</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5⁸</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Teacher education</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	ISCED ⁷	(a)		(b)*		Yes	No	Yes	No	0					1					2					3					4					5 ⁸					6					Teacher education				
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Sub-indicator 1.2.3	Is non-formal and informal ESD addressed in your relevant national policy and/or regulatory document(s) and operational frameworks?																																																	
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify.</i>																																																	
Sub-indicator 1.2.4	Is public awareness in relation to ESD addressed in relevant national document(s)?																																																	
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify.</i>																																																	
Sub-indicator 1.2.5	Does a formal structure for interdepartmental ⁹ co-operation relevant to ESD exist in your government?																																																	
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify.</i>																																																	
Sub-indicator 1.2.6	Does a mechanism for multi-stakeholder cooperation on ESD exist with the involvement of your government ¹⁰ ?																																																	
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify.</i>																																																	
Sub-indicator 1.2.7	Are public budgets and/or economic incentives available specifically to support ESD?																																																	
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify.</i>																																																	

⁷ Education level in accordance with ISCED.

⁸ National curricula and/or national standards/ ordinances/ requirements

⁸ For higher education institutions when answering: (1) regarding national legislation: this objective is focussing equally at the first stage of tertiary education (Bachelor), the second stage (MSc) and the third stage (PhD) while covering various aspects such as **service agreements/contracts, national strategies of R&D, university organisation and studies acts, or general laws of higher educations.**; (2) regarding national and/or national standards/ ordinances/ requirements: special attention shall be devoted to indications of linking systems of **quality assurance and accreditation** (with regard to the Bologna process) for higher educations institutions with ESD, as well as to **regulations of study programs and study fields** which reflect the principles of ESD.

⁹ Between State bodies.

¹⁰ For explanation see paragraph 46 of the Strategy.

Indicator 1.3 National policies support synergies between processes related to SD and ESD													
Sub-indicator 1.3.1	Is ESD part of SD policy(s) if such exist in your country?												
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify.</i>												
OBJECTIVE 2. PROMOTE SD THROUGH FORMAL, NON-FORMAL AND INFORMAL LEARNING													
<i>If necessary, provide relevant information on your country situation regarding this specific objective. (up to 1500 characters with spaces)</i>													
Indicator 2.1 SD key themes are addressed in formal education													
Sub-indicator 2.1.1	Are key themes of SD ¹¹ addressed explicitly in the curriculum ¹² /programme of study at various levels of formal education?												
Yes <input type="checkbox"/> No <input type="checkbox"/>	<p><i>Phase II: please specify in the table in Annex 1 (a) and use the scale. Indicate the results in the box below.</i></p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px;">A</th> <th style="padding: 2px;">B</th> <th style="padding: 2px;">C</th> <th style="padding: 2px;">D</th> <th style="padding: 2px;">E</th> <th style="padding: 2px;">F</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> </tr> </tbody> </table>	A	B	C	D	E	F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	B	C	D	E	F								
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
Sub-indicator 2.1.2	Are learning targets that support ESD (including skills, attitudes and values) addressed explicitly in the curriculum ¹³ /programme of study at various levels of formal education?												
Yes <input type="checkbox"/> No <input type="checkbox"/>	<p><i>Phase II: please specify in the table in Annex 1 (b) and use the scale. Indicate the results in the box below.</i></p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px;">A</th> <th style="padding: 2px;">B</th> <th style="padding: 2px;">C</th> <th style="padding: 2px;">D</th> <th style="padding: 2px;">E</th> <th style="padding: 2px;">F</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> </tr> </tbody> </table>	A	B	C	D	E	F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A	B	C	D	E	F								
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								
Indicator 2.2 Strategies to implement ESD are clearly identified													
Sub-indicator 2.2.1	Is ESD addressed through ¹⁴ : (a) Existing subjects ¹⁵ only?; (b) A cross-curriculum approach?; (c) The provision of specific subject programmes and courses?; (d) A stand-alone project ¹⁶ ?												

¹¹ For explanation see paragraph 15 of the Strategy.

¹² At State level, where relevant

¹³ At State level, where relevant

¹⁴ For higher education institutions: These distinctions would be equal to: a) **courses and disciplines**, b) **interdisciplinary courses**, c) **separate, specified SD courses or seminars**, and d) **stand alone projects** implemented by the department, faculty or inter-faculty structures.

¹⁵ E.g. geography, biology, etc. For high education 'subject' means 'course'.

¹⁶ Project is interpreted as a discrete activity with its own time allocation rather than a teaching/learning method.

(a) Yes <input type="checkbox"/> No <input type="checkbox"/> (b) Yes <input type="checkbox"/> No <input type="checkbox"/> (c) Yes <input type="checkbox"/> No <input type="checkbox"/> (d) Yes <input type="checkbox"/> No <input type="checkbox"/>	<p><i>Phase II: for (a) – (d) please specify for different levels of education system in accordance with ISCED in the table by ticking (X) as appropriate.</i></p> <table border="1" data-bbox="840 288 1653 608"> <thead> <tr> <th rowspan="2">ISCED levels</th> <th colspan="2">(a)</th> <th colspan="2">(b)</th> <th colspan="2">(c)</th> <th colspan="2">(d)</th> </tr> <tr> <th>Yes</th> <th>No</th> <th>No</th> <th>Yes</th> <th>Yes</th> <th>No</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>Teacher education</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	ISCED levels	(a)		(b)		(c)		(d)		Yes	No	No	Yes	Yes	No	Yes	No	0									1									2									3									4									5									6									Teacher education								
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Indicator 2.3 A whole institution approach¹⁷ to ESD/SD is promoted																																																																																										
Sub-indicator 2.3.1	Do educational institutions ¹⁸ adopt a "whole institution approach" to SD/ESD?																																																																																									
Yes <input type="checkbox"/> No <input type="checkbox"/>	<p><i>Phase II: please specify for all levels of your education system in accordance with ISCED,</i></p> <table border="1" data-bbox="1055 746 1435 1042"> <thead> <tr> <th>ISCED levels</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr><td>0</td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td></tr> <tr><td>Teacher education</td><td></td><td></td></tr> </tbody> </table> <p><i>as well as for non-formal and informal education.</i></p> <p><i>If relevant data are available please also specify.</i></p>	ISCED levels	Yes	No	0			1			2			3			4			5			6			Teacher education																																																																
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Sub-indicator 2.3.2	Are there any incentives (guidelines, award scheme, funding, technical support) that support "a whole institution approach to SD/ESD"?																																																																																									

¹⁷ "A whole institution approach" means that all aspects of an institution's internal operations and external relationships are reviewed and revised in light of SD principles. Within such an approach each institution would decide upon its own actions addressing the three overlapping spheres of Campus (management operations); Curriculum; and Community (external relationships)

¹⁸ For higher education institutions: **Whole university, whole college or whole faculty approach** (including inter-faculty approaches).

Yes <input type="checkbox"/> No <input type="checkbox"/>	<p><i>Phase II: please specify what schemes are available for all levels of your education system in accordance with ISCED,</i></p> <table border="1" data-bbox="1055 277 1435 571"> <thead> <tr> <th>ISCED levels</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr><td>0</td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td></tr> <tr><td>Teacher education</td><td></td><td></td></tr> </tbody> </table> <p><i>as well as for non-formal and informal education. If relevant data are available please also specify.</i></p>	ISCED levels	Yes	No	0			1			2			3			4			5			6			Teacher education		
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Sub-indicator 2.3.3	Do institutions/learners develop their own SD indicators for their institution/organisation?																											
Yes <input type="checkbox"/> No <input type="checkbox"/>	<p><i>Phase II: please specify for all levels of your education system in accordance with ISCED,</i></p> <table border="1" data-bbox="1055 783 1435 1077"> <thead> <tr> <th>ISCED levels</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr><td>0</td><td></td><td></td></tr> <tr><td>1</td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td></tr> <tr><td>Teacher education</td><td></td><td></td></tr> </tbody> </table> <p><i>as well as for non-formal and informal education. If relevant data are available please also specify.</i></p>	ISCED levels	Yes	No	0			1			2			3			4			5			6			Teacher education		
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Indicator 2.4 ESD is addressed by quality assessment / enhancement systems																												
Sub-indicator 2.4.1	Are there any education quality assessment/enhancement systems that include criteria on ESD ¹⁹ in: (a) National systems; (b) Other																											

¹⁹ For higher education institutions: Either **national centres for quality assessment in higher education**, or co-operations with general quality assessment agencies such as the European Foundation for Quality Management (EFQM).

(a) Yes <input type="checkbox"/> No <input type="checkbox"/> (b) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: please specify for various levels of your education system in accordance with ISCED,</i>																																																					
	<table border="1" style="border-collapse: collapse; width: 100%;"> <thead> <tr> <th rowspan="2" style="text-align: center;">ISCED levels</th> <th colspan="2" style="text-align: center;">(a)</th> <th colspan="2" style="text-align: center;">(b)</th> </tr> <tr> <th style="text-align: center;">Yes</th> <th style="text-align: center;">No</th> <th style="text-align: center;">No</th> <th style="text-align: center;">Yes</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">2</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">3</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">4</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">5</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">6</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: center;">Teacher education</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>						ISCED levels	(a)		(b)		Yes	No	No	Yes	0					1					2					3					4					5					6					Teacher education			
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<i>as well as for non-formal and informal education.</i> <i>If relevant data are available please also specify.</i>																																																						
Indicator 2.5 ESD methods and instruments for non-formal and informal learning are in place to assess changes in knowledge, attitude and practice.																																																						
Sub-indicator 2.5.1	Are SD issues addressed in informal and public awareness raising activities?																																																					
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify</i> ²⁰																																																					
Sub-indicator 2.5.2	Is there any support for work-based learning (e.g. for small companies, farmers, trade unions, associations, etc.), which addresses SD issues?																																																					
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify and provide examples</i>																																																					
Sub-indicator 2.5.3	Are there any instruments (e.g. research, survey, etc.) in place to assess the outcomes of ESD as a result of non-formal and informal learning?																																																					
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify, including the results available for (a) attitude, skills and values, and (b) knowledge.</i>																																																					
Indicator 2.6 ESD implementation is a multi-stakeholder process ²¹																																																						
Sub-indicator 2.6.1	Is ESD implementation a multi-stakeholder process?																																																					
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify in the table in Annex 2 and use the scale. Indicate the results in the box below.</i>																																																					
<table border="1" style="border-collapse: collapse; width: 100%;"> <thead> <tr> <th style="text-align: center;">A</th> <th style="text-align: center;">B</th> <th style="text-align: center;">C</th> <th style="text-align: center;">D</th> <th style="text-align: center;">E</th> <th style="text-align: center;">F</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>							A	B	C	D	E	F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																				
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																	

²⁰ Please describe how, e.g. in press articles, TV and radio programs promoting environmentally friendly goods and services, sustainable lifestyles, public lectures.

²¹ For higher education institutions: This covers the issue of **university “outreach”** (meaning wide spectrum from regional intergration, business co-operations and transdisciplinarity to eco-procurement and research-education-co-operations).

OBJECTIVE 3. EQUIP EDUCATORS WITH THE COMPETENCE TO INCLUDE SD IN THEIR TEACHING

If necessary, provide relevant information on your country situation regarding this specific objective. (up to 1500 characters with spaces)

Indicator 3.1 ESD is included in the training²² of educators

Sub-indicator 3.1.1	Is ESD a part of the initial educators' training ²³ ?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify by filling in the table in the annexe 3.</i>
Sub-indicator 3.1.2	Is ESD a part of the educators' in-service training?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify by filling in the table in the annexe 3.</i>
Sub-indicator 3.1.3	Is ESD a part of training of leaders and administrators of educational institutions?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify by filling in the table in the annexe 3.</i>

Indicator 3.2 Opportunities exist for educators to cooperate on ESD

Sub-indicator 3.2.1	Are there any networks / platforms of educators and/or leaders/administrators who are involved in ESD in your country?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify.</i>
Sub-indicator 3.2.2	Are ESD networks/platforms supported by the government in any way ²⁴ ?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify how. Please list major ones and describe as appropriate.</i>

OBJECTIVE 4. ENSURE THAT ADEQUATE TOOLS AND MATERIALS FOR ESD ARE ACCESSIBLE

If necessary, provide relevant information on your country situation regarding this specific objective. (up to 1500 characters with spaces)

Indicator 4.1 Teaching tools and materials for ESD are produced

Sub-indicator 4.1.1	Does a national strategy/ mechanism for encouragement of development and production of ESD tools and materials exist?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please describe.</i>
Sub-indicator 4.1.2	Is public (national, sub-national, local) authority money invested in this activity?

²² ESD is addressed by content and/or by methodology

²³ For higher education institutions: The focus is here on existing **teacher training universities/colleges** and on **in-service training programmes** regarding SD and ESD for university/college teachers in their own universities/colleges.

²⁴ Including assistance through direct funding, help in-kind, political and institutional support.

Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify to what extent public authority money is invested in this activity, by providing an indication of the amount (in USD) referring to the amount of ESD-related Research & Development expenditures, annually</i>																														
Indicator 4.2 Quality control mechanisms for teaching tools and materials for ESD exist																															
Sub-indicator 4.2.1	Do you have quality criteria and/or quality guidelines for ESD-related teaching tools and materials that are: (a) Supported by public authorities? ; (b) Approved by public authorities? ; (c) Tested and recommended for selection by educational institutions?																														
(a) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>For (a) and (b) please describe in phase I.</i>																														
(b) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>For (c) please describe in phase II.</i>																														
(c) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Also, in phase II please distinguish (a-c) for formal, informal and non-formal education.</i>																														
Sub-indicator 4.2.2	Are ESD teaching tools / materials available: (a) In national languages? ; (b) For all levels of education according to ISCED?																														
(a) Yes <input type="checkbox"/> No <input type="checkbox"/> (b) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>For (a) please specify in phase I.</i>																														
	<i>For (b) please specify in phase II.</i>																														
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Indicator 4.3 Teaching tools and materials for ESD are accessible																															
Sub-indicator 4.3.1	Does a national strategy/mechanism for dissemination of ESD tools and materials exist?																														
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please describe.</i>																														
Sub-indicator 4.3.2	Is public authority money invested in this activity?																														
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify to what extent by providing an indication of the amount in USD referring to the amount of ESD related R&D expenditures, annually.</i>																														
Sub-indicator 4.3.3	Are approved ESD teaching materials available through the Internet?																														
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please describe.</i>																														
Sub-indicator 4.3.4	Is a register or database of ESD teaching tools and materials in national language(s): (a) accessible through the Internet? ; (b) provided through other channels?																														

(a) Yes <input type="checkbox"/> No <input type="checkbox"/> (b) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>For (a) and (b) please specify.</i>
OBJECTIVE 5. PROMOTE RESEARCH ON AND DEVELOPMENT OF ESD	
<i>If necessary, provide relevant information on your country situation regarding this specific objective. (up to 1500 characters with spaces)</i>	
Indicator 5.1 Research²⁵ on ESD is promoted	
Sub-indicator 5.1.1	Is research that addresses content and methods for ESD ²⁶ supported?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: please specify and provide the total amount annually over the reporting period, and if feasible, as % of the total research budget.</i>
Sub-indicator 5.1.2	Does any research evaluate the outcome of the implementation of the UNECE Strategy for ESD?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify.</i>
Sub-indicator 5.1.3	Are post-graduate programmes available: (1) on ESD ²⁷ : (a) for Masters level; (b) for Doctorate level (2) addressing ESD: (a) for Masters level; (b) for Doctorate level
(1) (a) Yes <input type="checkbox"/> No <input type="checkbox"/> (b) Yes <input type="checkbox"/> No <input type="checkbox"/> (2) (a) Yes <input type="checkbox"/> No <input type="checkbox"/> (b) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: please specify for (1) (a) and (b) ; (2) (a) and (b).</i>
Sub-indicator 5.1.4	Are there any scholarships supported by public authorities for post-graduate and postdoctoral research in ESD: (a) for Masters level; (b) for Doctorate level
(a) Yes <input type="checkbox"/> No <input type="checkbox"/> (b) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: please specify for (a) and (b)</i>
Indicator 5.2 Development of ESD is promoted	
Sub-indicator 5.2.1	Is there any support for innovation and capacity building of ESD practice ²⁸ ?

²⁵ These includes support from various sources, such as state, local authorities, business and non-governmental sources.

²⁶ e.g. concepts; formation of attitudes and values; development of competencies, teaching and learning; school development; implementation of ICT; means of evaluation including socio-economic impacts.

²⁷ ESD is addressed by substance and/or by approach.

²⁸ Activities may include pilot projects, action research, social learning, multi-stakeholder teams

Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: please specify and provide the total amount annually over the reporting period.</i>
Indicator 5.3 Dissemination of research results on ESD is promoted	
Sub-indicator 5.3.1	Is there any public authority support for mechanisms ²⁹ to share the results of research and examples of good practices in ESD ³⁰ among authorities and stakeholders?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: please specify and provide the total amount annually over the reporting period.</i>
Sub-indicator 5.3.2	Are there any scientific publications: (a) specifically on ESD; (b) addressing ESD
(a) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase I: For (a) if feasible, please provide the number on annual basis over the reporting period. Please list the major ones.</i>
(b) Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: For (b) if feasible, please provide the number on annual basis over the reporting period. Please list the major ones.</i>
OBJECTIVE 6. STRENGTHEN CO-OPERATION ON ESD AT ALL LEVELS WITHIN THE UNECE REGION	
<i>If necessary, provide relevant information on your country situation regarding this specific objective. (up to 1500 characters with spaces)</i>	
Indicator 6.1 International co-operation on ESD is strengthened within the UNECE region and beyond	
Sub-indicator 6.1.1	Do your public authorities co-operate in/support international ³¹ networks on ESD?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify for national, sub-national and local levels and list major networks.</i>
Sub-indicator 6.1.2	Do educational institutions/organisations (formal and non-formal) in your country participate in international networks related to ESD?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please specify. List major networks.</i>
Sub-indicator 6.1.3	Are there any state, bilateral and/or multilateral cooperation mechanisms/agreements that include an explicit ESD component?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Phase II: Please specify and list the major ones.</i>
Sub-indicator 6.1.4	Does your Government take any steps to promote ESD in international forums outside the UNECE region?
Yes <input type="checkbox"/> No <input type="checkbox"/>	<i>Please list and describe.</i>

²⁹ e.g. conferences, summer schools, journals, periodicals, networks

³⁰ e.g. 'participatory approach'; links to local, regional and global problems; integrative approach to environmental, economic and social issues; orientation to understanding, preventing and solving problems.

³¹ In this context, "international associations, working groups, programmes, partnerships etc. covers "global", "regional" and "subregional"

ISSUE 7. CONSERVATION, USE AND PROMOTION OF KNOWLEDGE OF INDIGENOUS PEOPLE WITH RESPECT TO ESD

If necessary, provide relevant information on your country situation regarding this specific issue. (up to 2000 characters with spaces). Please be as specific as possible.

Phase II: please provide the updated information to indicate changes over time.

Phase III: please provide the updated information to indicate changes over time.

ISSUE 8. DESCRIBE ANY CHALLENGES AND OBSTACLES ENCOUNTERED IN THE IMPLEMENTATION OF THE STRATEGY

If necessary, provide relevant information on your country situation regarding this specific issue. (up to 1500 characters with spaces). Please be as specific as possible.

Phase II: please provide the updated information to indicate changes over time.

Phase III: please provide the updated information to indicate changes over time.

ISSUE 9. DESCRIBE ANY ASSISTANCE NEEDED TO IMPROVE IMPLEMENTATION

If necessary, provide relevant information on your country situation regarding this specific issue. (up to 1500 characters with spaces). Please be as specific as possible.

Phase II: please provide the updated information to indicate changes over time.

Phase III: please provide the updated information to indicate changes over time.

Annexe 1. (a)

Indicator 2.1, sub-indicator 2.1.1

Please specify which key themes of SD are addressed explicitly in the curriculum/programme of study at various levels of formal education, by filling in the table below?

(Please tick relevant themes for each level. Use the blank rows to insert additional themes that are considered to be keys in addressing learning for sustainable development.)

Some Key Themes covered by Sustainable Development	ISCED Levels					
	0	1	2	3	4	5
Peace studies (international relations, security and conflict resolution, partnerships, etc.)						
Ethics and philosophy						
Biological and landscape diversity						
Production and/or consumption patterns						
Citizenship, democracy and governance						
Natural resource management (including water, soil, mineral, fossil fuels, etc...)						
Human rights, (including gender, racial and inter-generational equity;)						
Personal and family health (e.g. HIV/AIDS, drug abuse, ...)						
Environmental health (e.g. food and drinking; water quality; pollution)						
Poverty alleviation						
Cultural diversity						
Economics						
Rural/urban development						
Corporate social responsibility						
Environmental Protection (Waste management, etc.)						
Ecological principles/ecosystem approach						
Climate change						
Total						
Others (<i>countries to add as many as needed</i>)						

NB The indicator will be reflected by (a) a scale based on the sum of ticks and (b) changes in the pattern of response between subsequent reports.

The assessment key for this table (max. 102 ticks; "other" not counted) is:

No of ticks	0-5	6-10	11-25	26-50	51-75	76-100
Scale	A	B	C	D	E	F

Indicator 2.1, sub-indicator 2.1.2

Please specify to what extent are learning targets that support ESD (including skills, attitudes and values) addressed explicitly in the curriculum³²/programme of study at various levels of formal education, by filling in the table below?

(Please tick relevant expected learning outcomes for each level. Use the blank rows to insert additional learning outcomes that are considered to be key outcomes in learning for sustainable development.)

Table of Learning Targets

Competence	Expected outcomes	ISCED Levels					
		0	1	2	3	4	5
Learning to learn Does education at each level enhance learners' capacity for:	- posing analytical questions/critical thinking						
	- understanding complexity/systemic thinking						
	- overcoming obstacles/problem-solving						
	- managing change/problem-setting						
	- creative thinking/future oriented thinking						
	- understanding interrelationships across disciplines/holistic approach						
	Total						
- other (please add)							
-							
Learning to do Does education at each level enhance learners' capacity for:	Expected outcomes	0	1	2	3	4	5
	- applying learning in a variety of life-wide contexts						
	- decision making also in situations of uncertainty						
	- dealing with crises and risks						
	- acting with responsibility						
	- acting with self- respect						
	- acting with determination						
Total							
- other (please add)							
-							
Learning to be Does education at each level enhance learners' capacity for:	Expected outcomes	0	1	2	3	4	5
	- self-confidence						
	- self-expression and communication						
	- coping under stress						
	- ability to identify and clarify values (for the phase III)						

³² At State level, where relevant

	Total								
	- other (please add)								
	-								
	Expected outcomes	0	1	2	3	4	5		
Learning to live and work together Does education at each level enhance learners' capacity for:	- acting with responsibility (locally and globally)								
	- acting with respect for others								
	- identifying stakeholders and their interests								
	- collaboration/team working								
	- participation in democratic decision making								
	- negotiation and consensus building								
	- distributing responsibilities (subsidiarity)								
Total									
- other (please add)									
	-								

NB The indicator will be reflected by (a) a scale based on the sum of ticks and (b) changes in the pattern of response between subsequent reports.

The assessment key for this table (max. 138 ticks; "other" not counted) is:

No. of ticks	0-7	8-14	15-35	36-70	71-104	105-138
Scale	A	B	C	D	E	F

Indicator 2.6, sub-indicator 2.6.1

Please specify to what extent is ESD implementation a multi-stakeholder process, by filling in the table below? Please provide examples of good practice.

(Please tick in what type of education stakeholders are involved. The UN DESD table is optional.)

(a)

Stakeholders	classification by UNECE Strategy for ESD		
	Formal	Non-formal	Informal
NGOs			
Local government			
Organised labour			
Private sector			
Community based			
Faith based			
Media			
Total			
Other (to be added below as needed)			

The assessment key for this table (max. 21 ticks; “other” not counted) is:

Number of ticks	0-1	2	3-5	6-10	11-15	16-21
Scale	A	B	C	D	E	F

(b)

Stakeholders	Classification by UN DESD				
	Public awareness	Quality education	Reorienting education	Training	Social learning
NGOs					
Local government					
Organised labour					
Private sector					
Community based					
Faith based					

Indicator 3.1, sub-indicator 3.1.3

Please specify to what extent is ESD a part of the initial and/or in-service educator’s training, by filling in the table below?

ISCED levels	% of education professionals that have received training ³³ to integrate ESD into their practice: (see key below)																	
	Educators												Leaders/administrators ³⁴					
	<i>Initial*</i>						<i>In service**</i>						<i>In service**</i>					
	A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F
0																		
1																		
2																		
3																		
4																		
5																		
6																		
Non-formal																		
Informal																		

The assessment key for this table (max. 100%) is:

% of educated trainers	0-5	6-10	11-25	26-50	51-75	76-100
Scale	A	B	C	D	E	F

³³ Training is understood to include at least one day (minimum 5 contact hours).

³⁴ Para 54 and 55 of the UNECE Strategy on ESD ...

* Please indicate the % of educators that have received initial training on ESD to total number of educators, by the reporting date.

** Please indicate the % of educators that have received training on ESD to total number of educators who received in-service teacher training, by the reporting date.

** Please indicate the % of educators that have received training on ESD to total number of educators who received in-service teacher training, by the reporting date.

Summary and Self-assessment³⁵ by countries:

1	Indicator 1.1	Prerequisite measures are taken to support the promotion of ESD	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
2	Indicator 1.2	Policy, regulatory and operational frameworks support the promotion of ESD	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
3	Indicator 1.3	National policies support synergies between processes related to SD and ESD	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
4	Indicator 2.1	SD key themes are addressed in formal education	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
5	Indicator 2.2	Strategies to implement ESD are clearly identified	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
6	Indicator 2.3	A whole institution approach to ESD/SD is promoted	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
7	Indicator 2.4	ESD is addressed by quality assessment / enhancement systems	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
8	Indicator 2.5	ESD methods and instruments for non-formal and informal learning are in place to assess changes in knowledge, attitude and practice.	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
9	Indicator 2.6	ESD implementation is a multi-stakeholder process	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
10	Indicator 3.1	ESD is included in the training of educators	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
11	Indicator 3.2	Opportunities exist for educators to cooperate on ESD	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
12	Indicator 4.1	Teaching tools and materials for ESD are produced	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
13	Indicator 4.2	Quality control mechanisms for teaching tools and materials for ESD exist	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
14	Indicator 4.3	Teaching tools and materials for ESD are accessible	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
15	Indicator 5.1	Research on ESD is promoted	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
16	Indicator 5.2	Development of ESD is promoted	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
17	Indicator 5.3	Dissemination of research results on ESD is promoted	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed
18	Indicator 6.1	International co-operation on ESD is strengthened within the UNECE region and beyond	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress	<input type="checkbox"/> Developing	<input type="checkbox"/> Completed

³⁵ On the basis of the answers to the sub-indicators, please self-assess the status of the implementation of the respective indicator in your country. If feasible, please specify the methodology used for the self-assessment. For the self-assessment the sub-indicators having the status of “proposed” should be ignored.

Appendix 5

Nordic Minister Council's Indicators for ESD within the SD Strategy

1. Which national authority is responsible for achieving ESD goals within the framework of the Nordic Minister Council Strategy on SD? What is its mandate and what kind of tools can be used?
2. Did a national strategy for ESD exist as part of the national strategy for SD as of 1 January 2006?
3. Were there any national policy documents written particularly for ESD as of 1 January 2006?
4. To what extent is ESD dealt with on different levels in the National Act for Schools and in Higher Education?
5. To what extent is ESD dealt with in the national curriculum for schools and for higher education?
6. Is there any special support for promoting an individual school that seeks to be recognised as a 'pre school/school for SD', 'green school' or 'global school'? Mention the total number of these schools.
7. How many universities are there in your country with compulsory courses of at least a five week study period characterised as ESD that form part of teacher education, civil engineering education, medicine, etc.?
8. Are there NGOs involved in the national education system promoting SD? Please list them.
9. To what extent are voluntary adult study organisations involved in ESD and how great a part of their activity is ESD?
10. Are there any national networks for researchers in ESD?
11. Are there any companies or trade unions, where a great part of their education activities is characterised as ESD, for example, companies aiming to fulfill the ideas on corporate social responsibility?
12. Is there any education material of good quality for ESD that is accessible in a simple way on the internet for schools and pre-schools all over the Nordic countries?

(Adapted from Lindberg 2005)

Appendix 6: ESD Indicator Framework for Measuring Progress During the DESD

Categories:	Status Indicators ⁵	Facilitative Indicators ⁶			Effect Indicators ⁷				Communication Indicators ⁸
Type: <i>Differentiating Function:</i>	Baseline	Context	Process	Learning	Output	Outcome	Impact	Performance	Headline (HI)/ Aggregate (AI)
Why would you use this indicator?	To identify the current state of play of ESD	To identify the existence of ESD support systems	To identify the existence of ESD processes & activities	To ensure the validity & improve effectiveness of indicators To promote learning & reflection on ESD	To identify the existence of resources & tools that assist with implementation & integration of ESD	To identify increased ESD awareness, understanding & competencies	To identify the existence of medium to long term effects of ESD efforts	To identify change in the status of the overall ESD picture	HI: To communicate change in ESD policy related efforts to policy makers or the general public. AI: To communicate change associated with the state of play of ESD
What ESD variables does this indicator assess?	The overall ESD picture	ESD governance mechanisms institutional support systems public opinions on ESD	ESD processes & activities	Learning during the indicator development process Learning from the indicators themselves	ESD outputs often in the form of materials such as tools and learning resources	ESD outcomes or changes that result from ESD efforts providing the context for longer term achievement	ESD impacts or lasting changes resulting from ESD efforts	Change in the overall ESD picture	HI: ESD policy priorities AI: The overall ESD picture

⁵ Status Indicators: assess variables that determine the position or standing of ESD in a country.

⁶ Facilitative Indicators: assess variables that assist, support or encourage engagement with ESD.

⁷ Effect Indicators: assess variables relating to initial, medium and long-term achievements during the DESD.

⁸ Communication Indicators: assess variables in a way that is easily accessible or facilitates communication with stakeholders and the general public.

What does this indicator look like?	<p>No. of schools across the country that are integrating and innovating curricula in ESD</p> <p>% of television programs that cover ESD themes (per month or year)</p> <p>No. of postgraduate research programs with a focus on ESD</p> <p>% of population that believe ESD skills important</p> <p><i>(*these indicators generally consist of numbers or ratios)</i></p>	<p>Does a national ESD/SD strategy exist? ⁹(UNECE)</p> <p>A formal structure for interdepartmental cooperation exists at the national government level on issues of ESD? (adapted UNECE)</p> <p>To what extent is informal and non-formal learning addressed in policy or regulatory documents? (adapted UNECE)</p> <p>A national mandatory policy exists that requires pre-service teacher education courses to provide training in ESD to all students.</p>	<p>Are there opportunities for stakeholder engagement in the development of a regional ESD plan?</p> <p>To what extent do ESD training workshops involve educators from across the education system?</p> <p>All pre-service teacher education courses provide training in ESD content and pedagogy?</p>	<p>To what extent do stakeholders in the indicator development process capture lessons learned?</p> <p>How often are indicators reviewed and adapted to integrate lessons learned?</p> <p>To what extent do indicators promote learning? (i.e. space to answer questions rather than yes/no)</p> <p><i>(*these indicators function best with observational data)</i></p>	<p>No. of titles and copies produced of curriculum ESD materials for schools</p> <p>Are toolkits for facilitating the integration of ESD into curriculum available?</p> <p>Do pedagogical resources exist to support higher education staff with mainstreaming ESD into the curriculum?</p> <p>To what extent do public forums exist for the community to become familiar with ESD?</p>	<p>Improved competencies of engineering graduates to address climate change within their profession</p> <p>Improved competencies of community educators to work in inter-cultural settings</p> <p>Improved competencies of organisations to work in partnership to accomplish sustainability goals</p> <p>Improved competencies of youth to stay away from unhealthy practices (unprotected sex/ drugs)</p> <p>All new teachers have new or improved skills & understanding in ESD</p>	<p>Increase in the No. of sustainable communities</p> <p>Increase in the no. of businesses reorganising and realigning policy and practices towards sustainability</p> <p>Increase in no. of women with university degrees or in managerial positions</p> <p>Increase in the no. of children graduating from primary school</p> <p>Decline in the income inequality gap</p>	<p>Increase in the No. of schools across the country that are integrating and innovating curricula in ESD.</p> <p>Increase in the % of television programs that cover priority sustainability themes (per month or year)</p> <p>-Increase in the no. of postgraduate research programs with a focus on ESD</p> <p>Increase in the % of population that believe ESD skills important</p> <p><i>(*these indicators generally consist of numbers or ratios)</i></p>	<p>HI: <i>depends on the ESD policy priorities of a nation</i></p> <p>AI: <i>to date no ESD examples exist. However, some related aggregate indicators are:</i></p> <p>ecological footprint</p> <p>human development index</p> <p>genuine progress indicator</p> <p>the compass of sustainability</p> <p><i>(*these indicators generally consist of numbers or ratios)</i></p>
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⁹ Alternatively all questions can also be presented as statements, eg. A national ESD/SD strategy exists.

<p>What are the benefits of the indicator?</p>	<p>Easy to identify areas that require improvement</p> <p>Provides a practical way to design impact indicators</p> <p>Assists to determine quantitative change relating to the overall ESD picture</p> <p>Relatively simple to develop & monitor indicators as well as to collect, interpret, & communicate data</p> <p>More likely to be comparable across regions</p>	<p>Provides a 'snapshot' of the ESD governance & support structures</p> <p>Easy to identify areas that require improvement</p> <p>Relatively simple to develop and monitor indicators as well as to collect, interpret & communicate data (might depend on whether quantitative or qualitative)</p> <p>Comparable at times, particularly if quantitative</p>	<p>Provides a 'snapshot' of the ESD processes and activities</p> <p>Easy to identify areas that require improvement</p> <p>Comparable at times, particularly if quantitative</p>	<p>Provides info on genuine ESD progress (quality) rather than existence or state of play.</p> <p>Promotes learning for change (or higher level learning).</p> <p>Promotes multi-stakeholder involvement and ownership or processes</p> <p>Contributes to the continual improvement of development and monitoring processes</p>	<p>Provides a 'snapshot' of ESD tools and resources available</p> <p>Easy to identify areas that require attention</p> <p>May be simple to communicate & understand. (e.g. when yes/no answers)</p>	<p>Provides a 'snapshot' of improvements resulting from ESD efforts.</p> <p>Simple to communicate & understand 'improvement'</p> <p>Comparable when explicitly defined.</p>	<p>Provides a 'snapshot' of achievement in ESD.</p> <p>Relatively simple to communicate. (e.g. when increase or decrease in numbers or ratios)</p> <p>May be comparable</p>	<p>Easy to identify areas that require improvement</p> <p>Assists to determine quantitative change relating to the overall ESD picture</p> <p>Relatively simple to develop & monitor indicators as well as to collect, interpret, & communicate data</p> <p>More likely to be comparable across regions</p>	<p>HI: Provides a 'snap shot' of policy related goals</p> <p>Facilitates communication about policy priorities</p> <p>Assists in raising the profile of policy related issues</p> <p>AI: Simplifies the complexity of a system of indicators (turns information into a few numbers)</p> <p>Practical for decision makers</p>
<p>What are the limitations of the indicator?</p>	<p>Unable to provide detailed information on ESD efforts</p> <p>Potential for indicator set to become too large & impractical</p>	<p>Details about the quality of the support structures may be difficult to attain or qualify.</p> <p>More time consuming to fill in observational</p>	<p>Often difficult to define a process</p> <p>Details about the quality of processes and approaches in place may be difficult to attain</p>	<p>Details about the learning may be difficult to attain or qualify</p> <p>This data is not usually gathered and therefore may</p>	<p>Unable to provide info on details of the tools and resources</p> <p>Explicit criteria must be developed to define what</p>	<p>Explicit criteria must be developed to define the boundaries of improvement as well as to make the indicator comparable</p>	<p>Difficult to establish clear cause and effect relationships (ESD => sustainable practices)</p> <p>Difficult to</p>	<p>Unable to provide detailed information on ESD efforts</p> <p>Potential for indicator set to become too large & impractical</p>	<p>HI: Unable to provide an adequate base from which to make decisions</p> <p>AI: May lose vital info during the aggregation process. (i.e.</p>

	<p>limiting ability to communicate change</p> <p>(*large numbers of indicators are a challenge among all indicator types.)</p> <p>*Explicit criteria must be developed to define what constitutes the overall ESD picture.</p>	<p>data which may lead to less of it</p> <p>Explicit criteria must be developed to define what constitutes a support structure as well as the boundaries of the indicators asking 'the extent to which'</p>	<p>or qualify</p> <p>More difficult to compare</p> <p>Explicit criteria must be developed to define what constitutes an ESD activity or process as well as the boundaries of the indicators asking 'the extent to which'</p>	<p>present some challenges</p> <p>Explicit criteria must be developed to define what constitutes learning and reflection as well as the boundaries of the indicators asking 'the extent to which'</p>	<p>constitutes an ESD tool or resource as well as the boundaries of the indicators asking 'the extent to which'</p> <p>More difficult to compare</p>		<p>identify whether these results stem from increased awareness, understanding and capacity building or, for example, legislation.</p> <p>Few programs include funding for long term assessment</p> <p>Difficult to know when it is realistic to expect the timing of an impact</p> <p>Difficult to ensure that the impacts are lasting</p>	<p>limiting ability to communicate change</p> <p>(*large numbers of indicators are a challenge among all indicator types)</p> <p>*Explicit criteria must be developed to define what constitutes the overall ESD picture.</p>	<p>loss of detail)</p> <p>Explicit weighting criteria must be developed in order to produce a meaningful aggregation</p>
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(Janousek and Tilbury 2006)

Appendix 7-

Common characteristics in the process of developing strategic frameworks

Multi-stakeholder: The process actively engages multiple stakeholders from a wide range of areas and sectors of society. The process specifically includes participation from the decision makers who are in a position to support the data collection and assessment of progress.

Transparent: At all stages the process being used to develop the national framework of indicators is clearly articulated and open to public input.

Participation: The process is participatory in a sense which goes beyond pure consultation to involving participants in the development of indicators, data collection and final assessment of progress in ESD.

Capacity building for decision making: Participation in the development process provides participants with opportunities to increase their knowledge, skills and ability to be involved in constructing indicators, data collection and assessment of progress.

Combination top-down and bottom-up approaches: A top-down approach capitalises on the benefits of strong leadership support and commitment to an indicator framework. A bottom-up approach ensures that on the ground support for the data collection and final results of the process exists.

Facilitation: The main role for those who lead the development of the indicator framework is to be a facilitator of the process. The focus is on providing the participants with encouragement, support and the structural base to ensure all of the above points can be achieved.

(adapted from Tilbury and Cooke 2005 p.83)

ARIES is the Australian Research Institute in Education for Sustainability based at Macquarie University, Sydney. ARIES is primarily funded by the Australian Government Department of the Environment and Water Resources.

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