



## *School Education*

**A National Review of Environmental  
Education and its Contribution to  
Sustainability in Australia  
- Key Findings**

**'Learning for sustainability is not simply an add-on, or cross-curricula theme, it requires a significant shift in current curriculum practice.'**

### ■ The Series

This summary of key findings is derived from Volume 2 of a five part series that reviews Environmental Education and its contribution to sustainability in Australia. The research was undertaken by the Australian Research Institute in Education for Sustainability (ARIES) for the Australian Government Department of the Environment and Heritage. The series is titled '*A National Review of Environmental Education and its Contribution to Sustainability in Australia*' and covers the following areas:

**Volume 1:** Frameworks for Sustainability

**Volume 2:** School Education

**Volume 3:** Community Education

**Volume 4:** Business and Industry Education

**Volume 5:** Further and Higher Education

### ■ What is Learning for Sustainability?

Learning *for* sustainability (also referred to as 'education for sustainability' or 'education for sustainable development') provides a new approach for current practice in Environmental Education. This new approach attempts to move beyond education *in* and *about* the environment to focus on equipping students with the necessary skills to be able to take positive action to address a range of sustainability issues.

Learning *for* sustainability motivates, equips and involves both students and institutions in reflecting on how they currently live and work. This assists them in making informed decisions and creating ways to work towards a more sustainable world. Learning *for* sustainability aims to go beyond individual behaviour change or single actions often associated with education for the environment. It seeks to implement systemic change within the school community and society.

## Current Situation

In Australia, the dominant focus of much Environmental Education thought and practice is the school education sector (primary and secondary education, teacher education and early childhood education). Interestingly though, the school education sector has been the most resistant to change for sustainability. Curriculum policy and guideline documents across the States have been slow to react to the thrust for Environmental Education and have only recently begun to take on the language of sustainability. Similarly there are few Environmental Education programs with a sustainability focus and even fewer courses that promote learning *for* sustainability.

We will not be able to strengthen the contribution of Environmental Education to sustainability in the school education sector solely through the integration of sustainability content into the curriculum. It will require a fundamental shift in current practice. This shift will require the establishment of whole-school approaches to learning *for* sustainability, which consider the infrastructure, management, curriculum and teaching approaches of the school. This reorientation is a costly and large-scale endeavour. Therefore progress towards learning *for* sustainability in this sector has been slow with many efforts only resulting in the integration of some sustainability concepts into curriculum content rather than in educational change.

## What is Needed

Increasingly it is being recognised that learning *for* sustainability is not simply an add-on, or cross-curricula theme, it requires a significant shift in current curriculum practice. Learning *for* sustainability is not solely about integrating new content into the curriculum, it is also about challenging teaching and learning approaches. This provokes the question of what capacity building is required to shift the integration of learning *for* sustainability, from the hands of a few dedicated enthusiasts, to being integrated across *whole-school communities*?

Schools, educators and policy makers need to understand best practice in learning *for* sustainability. This will allow us to evaluate the effectiveness of existing programs and our progress towards long-lasting change for sustainability. This knowledge could also be used in the design and delivery of future innovative Environmental Education programs for the sector.

Increasingly, and as a result of the sustainability agenda, Environmental Education is concerned with the ability of students to participate, influence, share and/or control the learning process. Participation has recently been identified as a core element of approaches that contribute to learning *for* sustainability. Rather than simply focusing on action elements of the curriculum there is a need to move toward a participatory approach based on equity, sharing, listening, reflection, co-learning, negotiation, 'critical' thinking, co-operation, collaboration, trust, futures-orientation and democracy. Building these capacities is a core objective of learning *for* sustainability and what differentiates it from previous Environmental Education approaches.

## About this Report

This report builds upon earlier reviews and identifies the current status and needs of Environmental Education in the school education sector from a national perspective. It does not include a review of Environmental Education in the higher or vocational education sector which has a significant role to play. It is reviewed separately in volume 5 of this series. This report represents a snapshot of the current context through a review of programs and emerging trends. A number of key themes were identified in the three areas:

### Primary and Secondary Schools

- i) Citizen Science: Generation and Control of Knowledge;
- ii) Systems Approaches and Systemic Thinking;
- iii) Experience, Experiential Learning and Action Learning;
- iv) Partnerships for Change;
- v) School Buildings and Grounds: Opportunities for Learning and Modeling Sustainability;
- vi) From Action to Participation;
- vii) Action Research;
- viii) Environmental Education Centres: From Earth Education to Ecological Foot-printing;
- ix) Sustainable Consumption; and
- x) Adjectival Education.

### Early Childhood Education

- i) More Than Just Hands-on Experience with the Outdoor or Natural Environment;
- ii) Challenging Developmental Psychology Frameworks;
- iii) Early Childhood Centres: Extending the Influence;
- iv) Change Towards Sustainability within Early Childhood Education; and
- v) Towards Sustainability: Linking Health and Environmental Concerns

### Teacher Education

- i) Initial Teacher Education: Searching for an Interdisciplinary and Whole-School Approach to Environmental Education;
- ii) Limited Opportunities for the Professional Development of Teachers in Environmental Education;
- iii) Revisiting Higher Education for Professional Development in Environmental Education;
- iv) The Challenge of Teaching for Sustainability;
- v) Core Competencies for Environmental Education and Learning for Sustainability; and
- vi) Key Multipliers and Strategic Partnerships in Teacher Education in Environmental Education

### ■ Sustainable Schools Program

The *Sustainable Schools Program* is informed by systems based approaches to Environmental Education. The Program, which has been piloted in NSW and Victoria, seeks to integrate existing fragmented Environmental Education programs (such as *Energy Smart Schools*, *Waste Wise*, *Waterwatch*, *Waterwise* and *Landcare*) into a more integrative program. *Sustainable Schools Program* is Australia's first systems based, school education program, which considers the integrated, interrelated, interdependent and integral relationships between the school's curriculum, management and physical environment in its approach to Environmental Education. The initiative is also innovative as it has been driven by new partnerships formed between Australian and State/Territory Government education and environmental agencies, industry, local government, NGOs and schools. The *Sustainable Schools Program* challenges schools to shift their current views on the role of education and schooling. It locates the school within the social system and locates the learner within the system of the school.

Gould League (2004) *Sustainable Schools Victoria*. Available at: <http://www.gould.edu.au/article.asp?id=6834>

Department of the Environment and Heritage (2004) *Sustainable Schools*. Australian Government. Available at: <http://www.deh.gov.au/education/nap/neen/projects.html#sustainable>

### ■ Sustainable Planet Project

'The [children's] interest in water conservation was sparked during the recent drought when children brought to the attention of staff, their concerns about water use in the sandpit. A whole centre project developed, organised by the preschoolers. The children did some initial research, read articles in the local paper, and revisited a project about water and water issues that they had been involved in the previous year... As the project proceeded, the children were able to critically analyse and change their own and others' behaviours - they'd learnt that water was precious, noticed they were using a lot of it, recognised the community concern about water use and decided to do something about it. Consequently, they became very careful with water use.'

Davis, J. & Elliott, S. (2003, p.15). *Early Childhood Environmental Education: Making it mainstream*. Canberra: Early Childhood Australia.

### ■ Our Environment: It's a Living Thing Mentoring Program

Funded by the NSW Government *Our Environment: It's a Living Thing Program*, the mentoring component invited community educators to participate in a professional development program for sustainability. The mentoring program used action learning to build the capacity of community educators to implement change in the workplace/community educational program. Community educators used a process of reflection-on-action to make changes to their education program toward learning for sustainability. The action learning process required educators to:

- identify a change focus for the program;
- develop an action plan to achieve these changes;
- then act upon the plan; and
- critically *reflect* on the process to learn from the action and plan the next stage.

Through the project evaluation the process has been shown to be effective in supporting educators in applying the learning for sustainability approaches to their workplace programs.

ILT Team (2004) *Mentoring as a Tool for Workplace Change: Outcomes and lessons learnt from the It's a Living Thing Education for Sustainability Professional Development Program*. Unpublished Paper, Sydney: Macquarie University.

## What are the Gaps?

Environmental Education remains a non-mandatory component of **schools** (with the exception of NSW) and still struggles for acceptance in mainstream curriculum in Australia. Across the States and Territories, curriculum policy and guidelines documents have been slow to react to sustainability and only few have recently begun to take on its language and concepts. As such, for most teachers and school managers, Environmental Education remains a low priority.

In **early childhood** there are also very few examples of Environmental Education and current approaches tend to focus on a hands-on approach to the nature, rather than on learning *for* sustainability.

While some **teacher education and professional development** courses may include Environmental Education concerns, these programs generally do not adequately prepare teachers to effectively use learning *for* sustainability approaches to Environmental Education in the classroom.

**Whole-school approaches**, which involve staff, students and community in learning for change towards sustainability, are beginning to emerge. *Sustainable Schools*, for example, encourages schools to consider their approaches to teaching practice, curricula, infrastructure and management policies in light of sustainability principles and processes. Such initiatives are beginning to shift approaches to Environmental Education within schools from singular, teacher led, knowledge centred activities to student centred, action-oriented, systemic approaches to learning *for* sustainability.

The involvement of the school community through partnerships is becoming increasingly important. As schools look outside their grounds, **Environmental Education Centres** are becoming influential in guiding schools and communities towards local change for sustainability.

In the future, in order to strengthen its contribution to sustainability, school based Environmental Education will need to:

- Build the capacity of educators (including early childhood educators) in learning *for* sustainability approaches;
- Establish whole of school approaches to learning *for* sustainability, which consider the management, curriculum, approaches to teaching practice and infrastructure of the school; and
- Develop strategic networks between educators, teacher educators and the schools communities to work towards change for sustainability.

## Recommendations

The research undertaken by ARIES has revealed a number of key needs. The recommendations identify practical steps at a policy, practice and research level that could strengthen the contribution of Environmental Education towards sustainability within the school education sector.

### For Government:

1. A national Environmental Education **statement and accompanying framework**, for schools, early childhood centres and teacher education institutions, is required to ensure that students receive a quality and



consistent learning experience in Environmental Education and sustainability. The framework would need to reflect nationally agreed education goals as well as pedagogical principles in the area of learning *for* sustainability.

2. The Federal Government, in collaboration with teacher education and registration boards in each State and Territory, to provide a **framework for teacher education** in learning *for* sustainability approaches to Environmental Education. The teacher learning *for* sustainability framework would be based upon research findings and aligned with the National Environmental Education Statement for Australian Schools.
3. A **national grant scheme** should be established for schools to develop programs (such as *Sustainable Schools*) that adopt whole-school approaches to Environmental Education and model sustainability in their management and operations.
4. All States and Territories should be provided with incentives to develop (or update) their own **mandatory State policies for Environmental Education and sustainability in schools**. The State policies should reflect the school and curriculum objectives as well as pedagogical principles outlined in the national framework for Environmental Education in schools (see recommendations 1 and 2).
5. Schools should be provided with incentives to develop their own **school policy and action plan for Environmental Education and sustainability**. These documents should adopt a whole-school approach and be developed in partnership with its stakeholders. Incentives could range from providing guidelines on how to develop school policy and action plans in this area to professional development for executive staff and principals.
6. Provide a case to boards of studies and curriculum and examination authorities for a **stronger curriculum and syllabus focus** on Environmental Education. This should focus particularly in Key Learning Areas, core senior secondary courses and learning *for* sustainability approaches to Environmental Education, and also indicate **accountability mechanisms** to ensure its adoption by teachers in class.
7. Provide incentives for **Environmental Education Centres to develop their own centre policy** incorporating learning *for* sustainability approaches to Environmental Education and to model sustainability in their own operations and management.
8. Federal government, in collaboration with States and Territories, to provide **guidelines for schools on partnerships** so that schools can move beyond networking, towards partnerships that are cross-sectoral and multi-stakeholder. These guidelines should be informed by research and provide support to schools in navigating partnership legalities, policies and resource issues.

#### **For Schools and Educators:**

9. Develop a **guide to assist citizen science programs** to make the shift from promoting environmental awareness to learning *for* sustainability. The

### ■ Schools Water Action Project - WWF South Africa

The *Schools Water Action Project (SWAP)* was established in 1992, at the University of Stellenbosch, South Africa. It engages teachers, students, and communities in study and action to protect local freshwater catchments. *SWAP* is designed to function at two levels. Action research is used by:

- students to reflect upon and act towards improving the quality of the local catchment; and
- teachers to reflect upon and improve their practice towards action oriented learning. This action orientation aims to improve the quality of school and its curriculum experiences.

An evaluation concluded that *SWAP* has been successful in stimulating pedagogical and curriculum innovation in Environmental Education. This has resulted from an approach that involves:

- interdisciplinarity, making it conducive to a holistic view of sustainability issues;
- shifts in the role of the teacher from disseminator of information, to becoming a supportive co-learner, creating opportunities for learning and change;
- stimulation of school-community dialogue and action through its hands-on practical experience approach to learning;
- promotion of the core values of sustainability; and
- adoption of a critical approach to Environmental Education, providing students with an opportunity to envision a better environment and society.

In practice, *SWAP* has not only raised awareness of sustainability issues, but also mobilized action, including the cleaning up of river catchment areas; ceasing pollution from agriculture and other industries; and a marked increase in levels of community involvement in managing local resources.

The action orientation and successful tangible environmental and social outcomes of the *SWAP* project make it unique internationally. Action research was instrumental as a tool in achieving these outcomes.

Tilbury, D. (1999) 'WWF-South Africa – The School Water Action Project' in Fien, J. (ed.) *Education and Conservation: An Evaluation of the Contributions of Education Programmes within the WWF Network - Reference Volume*. Unpublished report. London: WWF

guide is to be developed using learning *for* sustainability approaches to Environmental Education and should build upon evaluations of citizen science programs. The guide is to be targeted at citizen science organising bodies as well as teachers engaged in these programs. The guide can also assist funding bodies in ensuring that resources are allocated to programs that contribute towards sustainability outcomes.

10. Provide incentives and support for teachers in the Key Learning Areas of English, Mathematics, the Arts, Health and Physical Education as well as Science and Studies of the Society so that **cross-curricular infusion is strengthened**. Incentives could include resource materials, which identify specific learning outcomes within Key Learning Areas and have the potential to contribute to learning *for* sustainability.
11. Capture and **document case studies of action research and mentoring** for sustainability for use in teacher education. These case studies should assist with developing an understanding of how these approaches contribute to learning *for* sustainability.
12. Based on findings from the *Youth and Sustainable Consumption Research Project*, **develop resources for teachers** in partnership with professional Environmental Education associations to address this issue.
13. Working from action research data (see recommendation 29), develop a set of **criteria for the evaluation of effective Environmental Education** programs, resources and professional development courses offered by outdoor and nature based Environmental Education providers (including Environmental Education Centres).
14. Fund a national program in **learning for sustainability approaches to Environmental Education** for teacher educators who are environmental educators (similar to that undertaken in New Zealand or China).
15. Introduce incentives for teacher education providers to **develop core units on learning for sustainability** in school education including early childhood.
16. Develop a **mentoring program for teachers and managers working in Environmental Education Centres** to help them explore learning for sustainability approaches and how it influences their work. A national network that links those working on the issue together could support the mentoring.
17. Allocate resources for **strengthening multi-stakeholder networks or hubs** - including government agencies, parents and carers, teachers, teacher educators and early childhood teacher educators.
18. Develop and offer **short courses for teachers and early childhood educators** in learning *for* sustainability approaches, as well as for others associated with this area including government agencies, parents and carers, teacher educators and early childhood teacher educators. This course could be supported by a mentoring scheme.
19. Build capacity in **teacher education institutions by offering grants for research** projects in learning *for* sustainability across the curriculum. The grant would be offered to Heads of Departments and would involve a minimum of three teacher educators from different specialisms within the same Department.

20. Fund mentoring programs on learning *for* sustainability approaches to Environmental Education, **linking teachers and teacher educators** who are experienced in Environmental Education, futures education, multicultural education, global education and citizenship education.

#### For Researchers:

21. Commission research, which builds upon the work undertaken by Organisation for Economic Co-Operation and Development's *Environment and Schools Initiative*, on the potential of **Environmental Education as a catalyst for school development and quality education** outcomes.
22. Fund research that will lead to the identification of **core competencies for teachers** in learning *for* sustainability and provide advice on how to develop these competencies. This research will be presented to the Australian Council of Deans of Education as well as to teacher quality advisory panels, teacher education registration boards, etc.
23. Undertake longitudinal research into the **impact of pedagogical approaches** in school-based and early childhood education on learning *for* sustainability.
24. Commission research to outline the **types of partnerships necessary** to bring about change for sustainability, and how these partnerships can be developed. The research could develop indicators of effective partnerships for sustainability. Implications for Environmental Education planning and policy would be identified.
25. Commission research that explores how States and schools can **shift the practice of Environmental Education towards more systemic approaches** to school curriculum,

pedagogy, teacher education and school-community partnerships.

26. Commission research to explore the development and implementation of an **accountability mechanism/tool for Environmental Education in schools**. School principals will use the tool as a framework to report against in their school's annual report.
27. Undertake meta-evaluation research that identifies lessons learnt on the variety of processes developed in Australia in the area of **school buildings and grounds, and document examples of good practice**. This research would inform the national framework and State and Territory Environmental Education policies in schools (see recommendation 1).
28. Commission research into the **current and potential role of intercultural perspectives on learning for sustainability**. The research should draw upon experiences in Canada and South Africa where Environmental Education and learning *for* sustainability are critically linked to indigenous knowledge and intercultural understanding.
29. Commission **action research that engages outdoor and nature based Environmental Education providers** (including Environmental Education Centres) in exploring and questioning the outcomes of current nature-based Environmental Education programs, and exploring the potential of experiential learning and action learning approaches to strengthen the contributions of nature-based programs to sustainability.

#### ■ Action Research in Environmental Education for School Development: An OECD ENSI Example

The Organisation for Economic Co-Operation and Development (OECD) *Environment and Schools Initiative (ENSI)* is an international example of a successful professional development program for teachers. The initiative, launched in 1986, was targeted at schools across Europe and Australia and aimed to develop students' environmental awareness and dynamic qualities such as initiative, interdependence, commitment and readiness to accept responsibility. The initiative identified teachers as core agents of change in this innovative educational process.

Using curriculum development as a starting point the *Environment and Schools Initiative* has used action research approaches, to focus on integrating a culture of complexity, system thought and educational innovation into schools. In the whole-of-school approach, attention was given to:

- sustainability at a pedagogical level;
- sustainability at a socio-organisational level; and
- sustainability at a technical-economic level.

The OECD *ENSI* research approach operated at three levels:

- *Joint research* aimed at developing 'legitimate questions' concerning **concrete actions** to be carried out by students and/or teachers to **improve the quality of the school or surrounding landscape**;
- *Action research* by a group of teachers who, with partners, agreed to document and reflect upon the joint research, in order to develop and **improve its process**. It focused on underlying principles, implicit hypotheses, methodologies and obstacles concerning the research;
- *Second order action research* in which a network of practitioners jointly reflected upon the feasibility and effectiveness of the international OECD *ENSI* project partnership; the **effectiveness of local partnerships; and the diversity of partner roles**.

Organisation for Economic Co-Operation and Development, Environment and School Initiatives (2000) *From the Pilot... to the Mainstream: Generalisations of good practice in Environmental Education, An OECD-ENSI Strategy Workshop*. December 9-12, 1999, Hadeland, Norway: Ministry of Education, Research and Church Affairs.

***‘Learning for sustainability is not solely about integrating new content into the curriculum, it is also about challenging teaching and learning approaches.’***

■ **Disclaimer:**

The views expressed herein are not necessarily the views of the Australian Government, and the Government does not accept responsibility for any information or advice contained herein.

■ **Citation:**

Tilbury, D., Coleman, V. and Garlick, D. (2005) *A National Review of Environmental Education and its Contribution to Sustainability in Australia: School Education - Key Findings*. Canberra: Australian Government Department of the Environment and Heritage and Australian Research Institute in Education for Sustainability (ARIES).

■ **Full Report:**

This is an executive summary derived from a research report titled ‘*A National Review of Environmental Education and its Contribution to Sustainability in Australia: School Education*’.

The report is available for download in PDF format from [www.aries.mq.edu.au](http://www.aries.mq.edu.au) and [www.deh.gov.au/education](http://www.deh.gov.au/education) or contact the Australian Research Institute in Education for Sustainability to obtain a hard copy.

■ **For further information please contact:**

Environmental Education Section, Australian Government Department of the Environment and Heritage.

John Gorton Building, King Edward Terrace  
Parkes ACT 2600

+61 2 6274 1111

[www.deh.gov.au](http://www.deh.gov.au)

Australian Research Institute in Education for Sustainability

Macquarie University, Sydney NSW

[www.aries.mq.edu.au](http://www.aries.mq.edu.au)

Printed on recycled paper