The State of Environmental Education in New Zealand
A baseline assessment of provision in the formal sector in 2006
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In particular, we would like to recognise:

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Executive summary

This report details a study commissioned by WWF-New Zealand that examined the current level of activity related to environmental education/education for sustainability (EE/EFS) in New Zealand schools.

The purpose of the study was to identify a series of indicators which could provide information about the development of EE/EFS in the New Zealand school sector, and to interrogate those indicators to provide a baseline of development at this point. The study was timed to coincide with the early years of the United Nations’ Decade of Education for Sustainable Development 2005-2014 (UN DESD).

Eight indicators of interest, that fell into four categories, were identified: teacher education (school staff professional development, pre-service teacher education); school operation (curriculum status, whole school approach, Education Review reports, school-community interactions); research and evaluation; and advocacy.

The methods of data gathering to examine these indicators included interviews, questionnaires, and document analysis. Sampling strategies were devised that were appropriate to the target group. These included random sampling, convenient sampling and purposive sampling.

The findings suggest:

- professional development opportunities in EE/EFS exist for school staff, and some schools are taking these up, but more encouragement of this engagement is needed;
- there is some piecemeal pre-service teacher education available in EE/EFS and efforts need to be made to ensure every new teacher has some EE/EFS training during their studies;
- the curriculum status of EE/EFS is likely to be improved in the new curriculum, but it will remain non-mandatory and thus subject to the interest of each school in incorporating EE/EFS into their curriculum;
- whole school approaches to EE/EFS, such as the Enviroschools programme, are on the rise and should be further supported;
- Education Review Office reports appear to under-report EE/EFS in schools;
- schools do interact with their communities in EE/EFS and these interactions need to be encouraged;
- research and evaluation in EE/EFS in New Zealand is increasing, but there is a need for more research-active practitioners and better dissemination of research and evaluation findings;
- greater levels of advocacy and action are required to recognise the UN DESD.

An extended summary of findings and recommendations can be downloaded from the WWF website www.wwf.org.nz
Introduction

This report details a study, commissioned by WWF-New Zealand, which examined the level of activity in 2006 related to environmental education/education for sustainability (EE/EFS) in New Zealand schools.

The purpose of the study was to identify a series of indicators which could provide information about the development of EE/EFS in the New Zealand school sector, and to interrogate those indicators to provide a baseline of development at this point in time. The study was timed to coincide with the early years of the United Nations’ Decade of Education for Sustainable Development, 2005-2014.

The indicators examined in this study were chosen for several reasons. Some, like those in teacher education, whole school approaches and school-community interactions, have long been advocated as cornerstones for the development of EE/EFS (UNCED, 1992; UNESCO, 1975, 1978).

Others, such as the curriculum status of EE/EFS in New Zealand and Education Review Office reporting of EE/EFS, were chosen for their reflection of the Ministry of Education’s stance regarding EE/EFS in schools.

Finally, research and evaluation associated with EE/EFS in New Zealand was examined as an indicator of the EE/EFS community’s interest in understanding the theory and practice within their endeavours and what the key issues are for the field.

It was the intention of this study to gather quantitative data on these indicators to ascertain a baseline for future comparisons. It was not the intention of this study to investigate the practice of EE/EFS in our schools in any depth, as this has been the focus of a relatively recent study (Bolstad, Cowie, & Eames, 2004).

This is a small scale study that provided indicative figures based on the sampling and data gathering methods described in the following sections. The data can provide internal comparisons, but does not purport to accurately reflect all populations, so extrapolations to the population level should be treated cautiously.

We should address the issue of terminology at this point. A deliberate choice was made to refer to the activity this study was interested in as environmental education/education for sustainability (EE/EFS), despite this being a rather cumbersome assignation. Our reasoning was based on the current usage of the term ‘environmental education’ within the schooling sector.
This is reinforced by the *Guidelines for Environmental Education in New Zealand Schools* (Ministry of Education, 1999) provided to schools, along with a recent shift in thinking within the Ministry of Education and the relevant school advisory service to using ‘education for sustainability’ as a descriptor for this area. The term ‘education for sustainable development’ was not used, although this is the term used to describe the UN Decade, as it currently has little currency in the school sector.

It is fair to say there is an ardent debate, within New Zealand and internationally, over which term is the most appropriate to use (McKenzie, 2007; McKeown & Hopkins, 2003; Tilbury, 1995) and it is beyond the scope of this report to contribute to this debate.

The remainder of this report presents the findings on the indicators examined. This is done by sections dedicated to each indicator, in which are presented a rationale for the use of each indicator, the method by which data was collected, the data itself and an analysis of it, and finally some implications and recommendations regarding the way forward to develop EE/EFS in New Zealand schools. This report is concluded by a summary that reiterates the recommendations.
1.0 School staff professional development

1.1 Rationale for indicator

The central role of the school staff in providing education in schools is evident. Both the Tbilisi Declaration and Agenda 21 made clear recommendations for teacher in-service professional development in EE/EFS (UNCED, 1992; UNESCO, 1978).

As EE/EFS is a relative newcomer to school curricula in New Zealand, many teachers have completed their training with little or no background in EE/EFS. Additionally, the field is constantly evolving, not only in terms of our understanding of environmental problems and sustainable solutions (Flannery, 2005), but also in terms of curriculum and pedagogy that is appropriate to EE/EFS (Fien, 1994; Fleer, 2002; Sterling, 2001).

In New Zealand, this evolution has mirrored overseas trends, and there have been clear calls for enhanced teacher professional development in EE/EFS (Bolstad, Cowie, & Eames, 2004; Parliamentary Commissioner for the Environment (PCE), 2004). Research in this area has indicated a clear need for greater professional development for all staff in a school to prevent the reliance on one or two keen individuals to deliver the EE/EFS programme (Cowie et al., 2004).


In 2006, the Ministry of Education committed further funding to enhance the EE/EFS advisory service run through School Support agencies, to further develop the Enviroschools programme and to establish Mātauranga Taiao, an initiative to provide professional development for teachers in Māori medium schools.

While these opportunities for professional development (PD) are evident, it has been unclear as to what other avenues of PD have been available to teachers, and what they have been accessing. This study sought to provide information on the prevalence of this availability and access.
1.2 Research question
The research question that guided research on this indicator was:

What professional development in EE/EFS is currently available for, and being accessed by, school staff in the New Zealand school system?

1.3 Research method and sample
To address the possible diversity of opportunities for school staff PD in EE/EFS, a multi-pronged approach was taken to address this question. In this study PD was taken to include opportunities for staff to learn about EE/EFS through meetings, seminars, workshops, field trips, one-on-one advising, resource provision, etc.

It was known that school staff PD had been offered by:

- local government, including city, district and regional councils;
- some central government departments, such as the Department of Conservation;
- some organisations running Learning Experiences Outside-the-Classroom (LEOTC) programmes;
- a range of non-governmental organisations (NGOs); and
- a national team of EE/EFS advisors employed in the School Support agencies of the New Zealand universities.

Each of these groups was surveyed by means of an emailed questionnaire in May 2007. The sampling procedures and response rates for each of these groups is given below.

Local government: An email list of people thought to have a role in providing EE/EFS within city, district and regional councils was assembled. An initial list was identified through the EnviroSchools Foundation, Environment Waikato, and a Google search on district and city councils. This list was cross-checked by telephone calls to each council asking for the email details of a staff member with responsibility for EE/EFS. Selected council staff members were then sent an email inviting them to participate in the research, with a questionnaire that could be completed and returned electronically.
One known avenue of school staff PD in EE/EFS that is mainly offered by local government organisations is through the Enviroschools programme. A total of 37 councils were selected to participate according to identification of a person with responsibility for EE/EFS in their organisation.

Response rate: 20 councils replied, including nine regional, six district and five city councils. This represents 54% of the selected sample.

Central government: The Department of Conservation (DOC) was identified as the only central government department whose staff provided PD in EE/EFS direct to school staff on a regular basis. Direct contact was made with a national education officer inviting her to participate in the research. A questionnaire was subsequently emailed.

Response rate: One reply. This represents 100% of the selected sample.

LEOTC: A list of LEOTC providers was generated through the Ministry of Education website. An email questionnaire was sent to the educator of the nine LEOTC providers identified as being most likely to have provided EE/EFS to schools. A questionnaire was also sent to the Karori Wildlife Sanctuary.

Response rate: Five replies. This represents 50% of the selected sample.

Non-government organisations

NGOs were contacted through the Environment Centre networks. An Environment Centre network list was provided by the Hamilton Environment Centre. An email with the questionnaire was then sent to each Environment Centre with a request that it be sent on to their networks. Direct contact was also made with any organisations suggested by the Environment Centre network.

Response rate: Using this sampling method meant it was impossible to determine how many questionnaires were received by NGOs. Nine replies were received.

EE/EFS advisors: An email with a questionnaire was sent to the National coordinator of the EFS advisory team asking him to pass it on to the team members of 2006. The survey was sent to 12 advisors.

Response rate: Ten replies. This represents 83% of the sample.
New Zealand schools: As a cross-check, or triangulation, of the data collected from the school staff PD providers in EE/EFS, a concomitant survey was carried out using a random sample of New Zealand schools. Schools were identified from the Ministry of Education database available at their website (http://www.minedu.govt.nz). A total of 2,589 schools were listed in New Zealand in May 2006.

A random selection of 400 schools was made by identifying every 7th school on the list. Teen Parent Units were not included. In the instance of the identified school being of this type, the next school on the list was selected. This sample represented 15% of the total number of schools in New Zealand.

Surveys were mailed to the principals of the 400 schools. A letter outlining the purpose of the survey was included. Surveys were returned to the researchers using a self-addressed envelope.

Response rate: 152 out of 400 schools replied. This represents 38% of the selected sample, and 6% of the total school population. Information was collected from the schools on school type, decile rating, school size, and institution authority.

This data indicated the response profile is in close approximation to the total number of schools of each school type, school size and institution authority in New Zealand, so can be seen as a representative sample.

The response profile on decile ratings shows a slight under-representation of schools in the decile 1-3 group and a slight over-representation in the Deciles 4-8 and 9-10 groups, compared to the total number of schools of each type in New Zealand, so can be seen as a reasonably representative sample.

1.4 Limitations

This research was limited to the offering of teacher PD in EE/EFS in local and central government, LEOTC providers and NGOs. Information gathered relied upon existing databases, networks of people, or organisations believed to possibly have a role in providing teacher PD in EE/EFS.

Due to the lack of any comprehensive database of EE/EFS providers in New Zealand, it is likely the population sampled does not represent a thorough examination of all possible providers, and so the results must be considered in that way.
Equally, it is uncertain whether each organisation has been able to supply, through the means of a questionnaire, a comprehensive picture of the teacher PD in EE/EFS they provided in 2006, so results must again be treated with caution. It is uncertain whether, for example, the details associated with provision of PD through the Enviroschools programme have been included in all cases.

The information gained from the schools is also limited by the small sample size, with 6% of the population being represented in the results. The principal was chosen as the target for the survey, and the quality of the information provided has been reliant on the accuracy of the knowledge of the person completing the questionnaire. The use of a brief survey has also limited the depth of data capture to a broad overview.

1.5 Findings

The findings for this indicator are presented firstly from those who reported delivering teacher PD in EE/EFS in 2006. Table 1.1, shows the total amount of teacher PD reported delivered by respondents in 2006.

Table 1.1: Total Professional development in EE/EFS reported delivered by respondents to all schools in 2006 (n = 45 providers)

<table>
<thead>
<tr>
<th>School staff professional development activity</th>
<th>Number of schools in 2006</th>
<th>Approx numbers of school staff attending in 2006, if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talked at a staff meeting about EE/EFS for longer than one hour</td>
<td>289</td>
<td>2,538</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (less than one day duration)</td>
<td>301</td>
<td>1,198</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (more than one day duration)</td>
<td>84</td>
<td>101</td>
</tr>
<tr>
<td>Ran field trips/camps in the environment for school staff only</td>
<td>115</td>
<td>223</td>
</tr>
<tr>
<td>Provided EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td>433</td>
<td></td>
</tr>
<tr>
<td>Provided EE/EFS resource material (e.g. test kits, booklets, CDs etc) for staff</td>
<td>1,759</td>
<td></td>
</tr>
<tr>
<td>Offered tertiary level courses in an environmental area that staff could take</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Other – working individually with teachers, providing regular EE newsletters</td>
<td>100</td>
<td>343</td>
</tr>
<tr>
<td>Total</td>
<td>3,069</td>
<td>4,307</td>
</tr>
</tbody>
</table>
The table shows that some type of staff PD in E/EFS was delivered to schools on 3,069 occasions in 2006, involving 4,307 school staff. The greatest proportion (57%) of that PD was in the form of providing EE/EFS resource material, indicating a passive transfer of information.

A significant amount of PD was offered through advisor facilitation, either through the Enviroschools programme or the School Support EFS advisors. According to data provided by the Enviroschools Foundation, 197 schools were in the facilitated programme in 2006.

Data provided by the EFS advisors indicated they worked in at least 136 schools in 2006. These combined figures show that, as a minimum, 333 different schools received EE/EFS facilitation and advice in 2006.

The other key feature of Table 1.1 is that the main type (82%) of PD in EE/EFS reported delivered to school staff was of less than one day’s duration and was predominantly given at a staff meeting.

The following tables provide a breakdown of the contributions by regional, district and city councils, LEOTC providers, NGOs and the School Support EFS advisors to teacher PD in EE/EFS in 2006. The Department of Conservation reported no direct teacher PD in EE/EFS in 2006.
### Table 1.2 Professional development in EE/EFS reported delivered by regional council respondents to all schools in 2006 (n = nine providers)

<table>
<thead>
<tr>
<th>School staff professional development activity</th>
<th>Number of councils in 2006</th>
<th>Number of schools in 2006</th>
<th>Approx numbers of school staff attending in 2006, if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talked at a staff meeting about EE/EFS for longer than one hour</td>
<td>7</td>
<td>132</td>
<td>1,160</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (less than one day duration)</td>
<td>5</td>
<td>49</td>
<td>575</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (more than one day duration)</td>
<td>1</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Ran field trips/camps in the environment for school staff only</td>
<td>4</td>
<td>35</td>
<td>92</td>
</tr>
<tr>
<td>Provided EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td></td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>Provided EE/EFS resource material (e.g. test kits, booklets, CDs etc) for staff</td>
<td></td>
<td>1,171</td>
<td></td>
</tr>
<tr>
<td>Offered tertiary level courses in an environmental area that staff could take</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other? Provide regular EE newsletters</td>
<td>1</td>
<td>1</td>
<td>35</td>
</tr>
</tbody>
</table>
Table 1.3 Professional development in EE/EFS reported delivered by district council respondents to all schools in 2006 (n = six providers)

<table>
<thead>
<tr>
<th>School staff professional development activity</th>
<th>Number of councils in 2006</th>
<th>Number of schools in 2006</th>
<th>Approx numbers of school staff attending in 2006, if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talked at a staff meeting about EE/EFS for longer than one hour</td>
<td>2</td>
<td>12</td>
<td>128</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (less than one day duration)</td>
<td>1</td>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (more than one day duration)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ran field trips/camps in the environment for school staff only</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Provided EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Provided EE/EFS resource material (e.g. test kits, booklets, CDs etc) for staff</td>
<td></td>
<td></td>
<td>47</td>
</tr>
<tr>
<td>Offered tertiary level courses in an environmental area that staff could take</td>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
Table 1.4 Professional development in EE/EFS reported delivered by city council respondents to all schools in 2006 (n = five providers)

<table>
<thead>
<tr>
<th>School staff professional development activity</th>
<th>Number of councils in 2006</th>
<th>Number of schools in 2006</th>
<th>Approx numbers of school staff attending in 2006 if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talked at a staff meeting about EE/EFS for longer than one hour</td>
<td>3</td>
<td>22</td>
<td>140</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (less than one day duration)</td>
<td>1</td>
<td>15</td>
<td>Unknown</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (more than one day duration)</td>
<td>1</td>
<td>17</td>
<td>Unknown</td>
</tr>
<tr>
<td>Ran field trips/camps in the environment for school staff only</td>
<td>1</td>
<td>25</td>
<td>Unknown</td>
</tr>
<tr>
<td>Provided EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td></td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Provided EE/EFS resource material (e.g. test kits, booklets, CDs etc) for staff</td>
<td></td>
<td>111</td>
<td></td>
</tr>
<tr>
<td>Offered tertiary level courses in an environmental area that staff could take</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

As can be seen in Tables 1.2-1.4, the regional councils appear to be taking the main local government role in providing school staff PD in EE/EFS. Their work appears to be focussed on providing facilitation through Enviroschools advisors, providing resource material and speaking at staff meetings.

These avenues for delivery of EE/EFS PD were also important for district and city councils. As only 54% of councils responded to the survey, their contribution is likely to be higher than shown. But many of those who did not respond were smaller district and city councils who may defer much of the school-based EE/EFS in their region to their local regional council.

The next table shows the contribution by the LEOTC providers to school-based PD in EE/EFS.
Table 1.5 Professional development in EE/EFS reported delivered by LEOTC respondents to all schools in 2006 (n = five providers)

<table>
<thead>
<tr>
<th>School staff professional development activity</th>
<th>Number of councils in 2006</th>
<th>Number of schools in 2006</th>
<th>Approx numbers of school staff attending in 2006 if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talked at a staff meeting about EE/EFS for longer than one hour</td>
<td>1</td>
<td>12</td>
<td>unknown</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (less than one day duration)</td>
<td>3</td>
<td>73</td>
<td>202</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (more than one day duration)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ran field trips/camps in the environment for school staff only</td>
<td>2</td>
<td>7</td>
<td>unknown</td>
</tr>
<tr>
<td>Provided EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td></td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Provided EE/EFS resource material (e.g. test kits, booklets, CDs etc) for staff</td>
<td></td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>Offered tertiary level courses in an environmental area that staff could take</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

This table indicates LEOTC educators were delivering staff PD in EE/EFS mainly as workshops, hui or seminars of less than one day, advising schools and providing resource material.

The next table shows the contribution by the NGO providers to school-based PD in EE/EFS.
Table 1.6 Professional development in EE/EFS reported delivered by NGO respondents to all schools in 2006 (n = nine providers)

<table>
<thead>
<tr>
<th>School staff professional development activity</th>
<th>Number of councils in 2006</th>
<th>Number of schools in 2006</th>
<th>Approx numbers of school staff attending in 2006, if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talked at a staff meeting about EE/EFS for longer than one hour</td>
<td>3</td>
<td>64</td>
<td>500</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (less than one day duration)</td>
<td>3</td>
<td>27</td>
<td>50</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (more than one day duration)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ran field trips/camps in the environment for school staff only</td>
<td>4</td>
<td>36</td>
<td>78</td>
</tr>
<tr>
<td>Provided EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td>166</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Provided EE/EFS resource material (e.g. test kits, booklets, CDs etc) for staff</td>
<td>177</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Offered tertiary level courses in an environmental area that staff could take</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1.6 shows that NGOs appear to be a significant factor in providing school staff PD in EE/EFS. In 2006, they made contributions through staff meetings, workshops/hui/seminars, field trips/camps, and through advising in schools. Due to the difficulties of sampling this group, it is likely that NGO contribution may in fact be significantly higher than these figures indicate.

The next table shows the contribution by the national EFS advisors to school-based PD in EE/EFS.
Table 1.7: Professional development in EE/EFS reported delivered by national EFS advisor respondents to all schools in 2006 (n = ten providers)

<table>
<thead>
<tr>
<th>School staff professional development activity</th>
<th>Number of schools in 2006</th>
<th>Approx numbers of school staff attending in 2006 if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talked at a staff meeting about EE/EFS for longer than one hour</td>
<td>47</td>
<td>610</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (less than one day duration)</td>
<td>134</td>
<td>426</td>
</tr>
<tr>
<td>Gave workshops, hui, seminars, courses on EE/EFS for staff (more than one day duration)</td>
<td>84</td>
<td>101</td>
</tr>
<tr>
<td>Ran field trips/camps in the environment for school staff only</td>
<td>11</td>
<td>47</td>
</tr>
<tr>
<td>Provided EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>Provided EE/EFS resource material (e.g. test kits, booklets, CDs etc) for staff</td>
<td>141</td>
<td></td>
</tr>
<tr>
<td>Other?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working individually with staff</td>
<td>65</td>
<td>200</td>
</tr>
<tr>
<td>Water workshop for provisionally registered teachers</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 1.7 shows clearly the contribution being made to school staff PD in EE/EFS by members of the School Support EFS advisory team. This contribution flows across all aspects of PD investigated, and shows substantial numbers of school staff have undertaken PD with these advisors.

These advisors report working with only 136 schools, being 5% of all New Zealand schools, and this reflects a current focus on depth rather than breadth. Interestingly, the advisors as a group reported that 37% of these schools were at the secondary level, which is a far greater proportion of these schools compared to their numbers throughout the country (13% of all schools).

This may reflect an attempt to raise the delivery of EE/EFS in secondary schools, as this delivery has hitherto been difficult, due to perceived issues of crowded curricula and barriers to integrated teaching.
To gauge the number of educators working to deliver EE/EFS in New Zealand schools, respondents were asked to indicate how many full-time equivalent staff members were employed in their organisations to do so in 2006. Their responses are shown in Table 1.8.

Table 1.8 Number of staff employed to deliver EE/EFS in schools in 2006

<table>
<thead>
<tr>
<th>Type of Organisation</th>
<th>Total staff delivering EE/EFS to schools (in full time equivalents)</th>
<th>Staff delivering EE/EFS to schools per organisation type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central government</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Local government</td>
<td>43.52</td>
<td>2.2</td>
</tr>
<tr>
<td>LEOTC</td>
<td>5.5</td>
<td>1</td>
</tr>
<tr>
<td>NGO</td>
<td>13.6</td>
<td>1.5</td>
</tr>
<tr>
<td>School Support Advisors</td>
<td>11</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td>73.62</td>
<td></td>
</tr>
</tbody>
</table>

This table indicates that local government appears to be the largest employment group of staff delivering EE/EFS in schools. As local government organisations employ Enviroschools facilitators, it is likely these facilitators form a significant proportion of those staff (although it is known that some Enviroschools facilitators are contracted to, rather than employed by, local government, so it is a little unclear whether the contractors have been included). It is also possible that local government and NGO staff deliver EE/EFS to schools as only part of their role.

Finally, school PD providers were asked what topics they offered to staff in 2006, and the findings are shown in Table 1.9.
Table 1.9: Professional development topics in EE/EFS offered to school staff in 2006

<table>
<thead>
<tr>
<th>Topic</th>
<th>No of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste</td>
<td>14</td>
</tr>
<tr>
<td>What is EE/EFS?</td>
<td>11</td>
</tr>
<tr>
<td>Enviroschools</td>
<td>7</td>
</tr>
<tr>
<td>Water</td>
<td>7</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>6</td>
</tr>
<tr>
<td>Living Landscapes</td>
<td>5</td>
</tr>
<tr>
<td>Climate change/energy</td>
<td>5</td>
</tr>
<tr>
<td>Empowering students</td>
<td>3</td>
</tr>
<tr>
<td>Teachers as facilitators</td>
<td>2</td>
</tr>
<tr>
<td>Integration</td>
<td>2</td>
</tr>
<tr>
<td>Enviro Awards</td>
<td>1</td>
</tr>
</tbody>
</table>

The topics in this table can be placed in three groups – content topics (e.g. waste, water etc), teaching and learning topics (e.g. What is EE/EFS?), and Enviroschools topics.

As such 58% were content, 29% were teaching and learning, and 13% were Enviroschools. As the Enviroschools Programme encourages a teaching and learning process focusing on certain content areas e.g. zero waste, this component could be seen as a combination of the first two.

As noted earlier, an attempt to check or triangulate this data on EE/EFS delivery with reported school uptake was made using a survey of a sample of schools, asking them to report what PD in EE/EFS was undertaken by their staff in 2006.

The data provided by the deliverers and the schools resist direct correlation, as there can be no certainty that the responses obtained are representative, and the sample sizes and the response rates were different in each survey group.

However, knowing that the school sample was generated randomly and the responses were generally representative of the school population according to several criteria (see above), some analysis of the spread of the data across the different PD opportunities is indicative. The data obtained from schools is shown in Table 1.10.

Table 1.10: Professional development in EE/EFS reported undertaken by staff in 2006 for all schools (n = 152 schools)
<table>
<thead>
<tr>
<th>School staff professional development activity</th>
<th>Number of schools reporting involvement in 2006</th>
<th>Number of activities attended in 2006</th>
<th>Approx total numbers of your school staff attending these events in 2006, if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended a staff meeting talk on EE/EFS for longer than one hour</td>
<td>40</td>
<td>76</td>
<td>423</td>
</tr>
<tr>
<td>Attended workshops, hui, seminars, courses on EE/EFS for school staff (less than one day duration)</td>
<td>40</td>
<td>70</td>
<td>110</td>
</tr>
<tr>
<td>Attended workshops, hui, seminars, courses on EE/EFS for school staff (more than one day duration)</td>
<td>15</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td>Attended field trips/camps in the environment for school staff only</td>
<td>15</td>
<td>31</td>
<td>71</td>
</tr>
<tr>
<td>Received EE/EFS facilitation through the Enviroschools programme</td>
<td>44</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Received EE/EFS advice through EFS school advisors</td>
<td>39</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Received EE/EFS resource material (e.g. test kits, booklets, CDs etc) for school staff</td>
<td>58</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Undertook tertiary level courses in an environmental area</td>
<td>5</td>
<td>N/A</td>
<td>5</td>
</tr>
</tbody>
</table>

As the table shows, schools reported that two of the main ways they received staff PD in EE/EFS was through staff meetings, and workshops/hui/seminars of less than one day, although much fewer staff per school were engaged in the latter.

A significant proportion (25-30%) of the schools responding to the survey indicated that they received either facilitation through the Enviroschools programme or support and advice from the national EFS School Support advisors, or both.

In fact, 23 schools reported receiving support from both groups, and although it is known that schools do receive support from both groups in regions of the country, it is unlikely to be this high.

This finding, and the finding noted earlier of a minimum 333 schools (13% of all schools) reported as having this type of support delivered to them by the deliverers,
means this self-report data must be treated cautiously. It is likely the data given by the deliverers is more reliable.

Of interest too is the number of schools that reported receiving EE/EFS resource material. When this number is adjusted for the response rate, it would be expected that just under 1,000 schools would report receiving material. This is a low figure compared to the conservative 1,759 schools reported to have been sent EE/EFS resource material by the deliverers of EE/EFS to schools.

This may be attributable to this material having been sent to someone other than the person who completed the school survey and this person having no knowledge of it. But it is also possible that at least some of this material has failed to reach a useful target, is poorly known and hence under utilised in the schools. This is a problem that has been known to plague providers of such materials to schools.

What is perhaps more germane to the future provision of EE/EFS in New Zealand schools is that approximately one third of the schools responding reported that they had had no professional development in EE/EFS for their staff in 2006. If this finding was to be extrapolated, it would indicate that around 860 schools may not be receiving any PD in EE/EFS.

As it is possible that schools more involved in EE/EFS and receiving PD may have been more inclined to respond to the survey, the figure of schools receiving no EE/EFS PD may be much higher. The schools survey also asked schools which topics they accessed PD in EE/EFS for in 2006, and what topics they would like more PD in. The findings are shown in Tables 1.11 and 1.12.

Table 1.11: Professional development topics accessed by school staff in 2006

<table>
<thead>
<tr>
<th>Topic</th>
<th>No of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste</td>
<td>31</td>
</tr>
<tr>
<td>What is EE/EFS?</td>
<td>21</td>
</tr>
<tr>
<td>Water</td>
<td>17</td>
</tr>
<tr>
<td>Enviroschools</td>
<td>17</td>
</tr>
<tr>
<td>Landscaping</td>
<td>11</td>
</tr>
<tr>
<td>Facilitation</td>
<td>4</td>
</tr>
<tr>
<td>Planning &amp; implementation</td>
<td>3</td>
</tr>
<tr>
<td>Visits/Networking</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 1.12: Professional development topics school staff would like more access to.

<table>
<thead>
<tr>
<th>Topic</th>
<th>No of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is EE/EFS?</td>
<td>22</td>
</tr>
<tr>
<td>Waste</td>
<td>11</td>
</tr>
<tr>
<td>Global warming</td>
<td>6</td>
</tr>
<tr>
<td>Enviroschools</td>
<td>4</td>
</tr>
<tr>
<td>Integration</td>
<td>3</td>
</tr>
<tr>
<td>Visits/Networking</td>
<td>3</td>
</tr>
<tr>
<td>Carbon neutrality</td>
<td>3</td>
</tr>
<tr>
<td>Facilitation</td>
<td>1</td>
</tr>
<tr>
<td>Energy</td>
<td>1</td>
</tr>
</tbody>
</table>

If the same three groupings are employed as earlier: content topics (e.g. waste, water, etc.); teaching and learning topics (e.g. What is EE/EFS?); and Enviroschools topics.

Then it can be seen that 55% of topics delivered in 2006 were content-based, 28% were about teaching and learning, and 17% were Enviroschools topics. These figures are very similar to those given by the EE/EFS deliverers.

However, when the data for what school staff would like more PD in EE/EFS is analysed, 54% want more PD in teaching and learning EE/EFS, 39% want more content-based topics, and just 7% want to know more about Enviroschools. This indicates that staff want the tools and ideas on how to teach and understand learning in EE/EFS as much as they want knowledge of the subject matter.

What is interesting in the list of content topics in Table 1.12 is the appearance of topics currently being discussed in the public domain, such as global warming and carbon neutrality.
1.6 Implications and recommendations

This examination of organisations providing professional development in EE/EFS to school staff has revealed that a lot of opportunities are being offered. Major providers appear to be regional councils, NGOs and the School Support EFS advisors.

These organisations appear to provide PD in the form of resource material, speaking at staff meetings, holding short workshops/hui/seminars, and providing facilitation and advice in schools.

There are limitations on the accuracy of the data using a questionnaire collection method, as the questions are prone to interpretation by the respondent, and these interpretations cannot be clarified. However, the schools data appears to indicate similarly that staff meetings, short workshops/hui/seminars, and facilitation and advice were the main ways schools received PD in EE/EFS.

It is of some concern that a significant proportion of schools reported receiving no PD in EE/EFS in 2006. While school budgets for PD are always tight and there are competing demands for that budget in schools, this lack of opportunity for practicing teachers to upskill in this area will not help the provision of EE/EFS in these schools.

As most of these teachers did not receive any pre-service training in EE/EFS, it may prove difficult for them to be confident and competent to deliver EE/EFS to their students.

The survey revealed more than half of the EE/EFS topics for PD in 2006 were based on some area of content e.g. waste, water etc. Most of this PD was delivered by the local government and NGOs, whereas the EFS advisors provided PD focussed as much on teaching and learning processes as on content. The school survey indicated school staff were at least equally concerned about how to teach EE/EFS as they were about what to teach.

Recommended actions are:

- local government (particularly regional councils) and NGOs be recognised as important sources of school staff PD in EE/EFS;
• providers of EE/EFS PD in these organizations balance their delivery in terms of content and pedagogy to satisfy the needs of school staff to know what and how to teach EE/EFS;
• attempts are made to ensure that every school has access to some form of EE/EFS PD for their staff as, without it, it is unlikely schools will deliver EE/EFS to their students;
• a database of EE/EFS providers be constructed, maintained and made available to schools to facilitate provision of PD;
• PD for school staff be provided in many EE/EFS knowledge areas to spread the focus wider than the predominant emphasis on waste.
2.0 Pre-service teacher education

2.1 Rationale for indicator
The importance of teacher education institutions in promoting EE/EFS is clearly understood (UNCED, 1992; UNESCO, 2005). Chapter 36 of Agenda 21 recommended that educational authorities in all countries established, for all teacher trainees, pre-service programmes that addressed the nature and methods of environmental and development education (UNCED, 1992).

As New Zealand was a signatory to Agenda 21, it is important we understand whether we are delivering in this area. UNESCO (2005) has recently argued for the reorientation of teacher education to address sustainability, noting that teacher education institutions are well placed to bring about change in the education system.

Further, it has been argued that tertiary or higher education institutions have a key role to play in shaping society through their teachings (Parliamentary Commissioner for the Environment (PCE), 2004), and as teacher education generally occurs in such institutions, there was a strong imperative to consider the prevalence of EE/EFS in pre-service teacher education in New Zealand.

It has previously been noted that little research exists as to the extent of delivery of EE/EFS in New Zealand’s tertiary institutions, let alone more specifically in its teacher education faculties (Bolstad et al., 2004; Parliamentary Commissioner for the Environment (PCE), 2004). This study sought to contribute to overcoming that deficiency.

2.2 Research question
The research question that guided research on this indicator was:

What teacher education is being provided in EE/EFS in pre-service primary and secondary teacher education courses in New Zealand?

2.3 Research method and sample
A database of New Zealand institutions offering primary and/or secondary teacher education courses was obtained using the Ministry of Education’s TeachNZ teacher education study guides (TeachNZ 2007a, b). A sample of 12 tertiary institutions
offering substantive qualifications in teaching was identified, including seven universities, three wananga and two Christian-based colleges.

In May 2007, a questionnaire and accompanying letter (see Appendix) was emailed to a staff member in each institution, either directly to a person known to be involved in environmental education, or to a contact person as shown in the TeachNZ database.

In the case of two of the universities which have recently merged with their local colleges of education, the questionnaire was sent to a staff member in the previous college of education, as this was where pre-service teacher education occurred in 2006.

The questionnaires were returned to the researchers by email. Seven institutions replied, representing a response rate of 58%. Respondents included all the universities currently offering mainstream teacher education courses. In some cases more than one staff member responded from an institution where EE/EFS was being delivered in more than one subject area.

2.4 Limitations

This research was limited to the offering of EE/EFS in faculties of education at New Zealand tertiary or higher education institutions. It did not attempt to examine what other environmental/sustainability subjects may have been available to teacher education students in other faculties of the institutions, nor how many of these students may have taken such papers. It is recognised that teacher education students may have completed environmental/sustainability papers as part of their qualifications.

A second limitation is the quality of the information gained using a questionnaire, as it relied upon certain individuals to provide details of all offerings in their faculty of education that included EE/EFS. As such, it can be assumed some offerings may not have been captured. However, it can be reasonably assumed that the most evident offerings do appear here. The use of a brief survey has also limited the depth of data capture to a broad overview.
2.5 Findings

The questionnaire focussed on a number of key aspects of delivery of EE/EFS in courses or papers in teacher education in 2006. Table 2.1 shows the institutions who responded to the questionnaire that reported offering EE/EFS in teacher education, and whether it was compulsory for all students to study EE/EFS.

Table 2.1 Institutions offering EE/EFS in teacher education in 2006

<table>
<thead>
<tr>
<th>Institution</th>
<th>Offered pre-service teacher education in EE/EFS in 2006 (yes or no)</th>
<th>Compulsory for all students (yes or no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bethlehem Tertiary Institute</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Masters Institute</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Massey University</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Te Whare Wānanga o Awanuiārangi</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>University of Auckland</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>University of Canterbury</td>
<td>Yes</td>
<td>In some areas e.g. secondary</td>
</tr>
<tr>
<td>University of Otago</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>University of Waikato</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Victoria University</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

As can be seen from the table, every responding institution except Massey University reported offering some EE/EFS in their teacher education programmes. We are aware that Massey University has previously offered EE/EFS in their teacher education, but this is currently not being offered. The only institution reporting that their offering in EE/EFS was compulsory for all teacher education students was the University of Waikato, although the University of Canterbury does make it compulsory for some groups of pre-service teachers.

Further detail on the offerings at each institution is provided in Table 2.2. As the offerings are highly diverse, they resist comparison and are reported here under each institution for future reference.
<table>
<thead>
<tr>
<th>Institution</th>
<th>Paper code or name</th>
<th>Level of paper i.e. 1st year</th>
<th>Credit points for paper as fraction of total qualification</th>
<th>Number of students in paper in 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bethlehem Tertiary Institute</td>
<td>TCS 6155 Curriculum strand</td>
<td>Second year of B. Education</td>
<td>10/360 Part of paper</td>
<td>34</td>
</tr>
<tr>
<td>Te Whare Wānanga o Awanuiārangī</td>
<td>AKO 133 Akoranga Māori: Māori principles of education</td>
<td>First year of B. Māori Education (Teaching)</td>
<td>1/10</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>AKO 321 Māori science and technology</td>
<td>Third year of B. Māori Education (Teaching)</td>
<td>3/10</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>AKO 364 Science/ Pūtaiao Curriculum</td>
<td>Third year of B. Māori Education (Teaching)</td>
<td>3/10</td>
<td>12</td>
</tr>
<tr>
<td>University of Auckland</td>
<td>EDCURSEC 689 Environmental education</td>
<td>Grad. Diploma in Teaching</td>
<td>15/120</td>
<td>8</td>
</tr>
<tr>
<td>University of Canterbury</td>
<td>Environmental education</td>
<td></td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Education for sustainable development</td>
<td>Grad. Diploma in Teaching and Learning</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>ED402 Education studies</td>
<td>Grad. Diploma in Teaching and Learning</td>
<td>Part of 16 credit paper</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Outdoor education</td>
<td>B. Education - secondary</td>
<td>Part of 12 credit paper</td>
<td>16</td>
</tr>
<tr>
<td>University of Otago</td>
<td>EDUO Survival</td>
<td>Second year of B. Education</td>
<td>8 (only offered every two years) Part of paper</td>
<td>Not offered 2006 (37 in 2007)</td>
</tr>
<tr>
<td></td>
<td>Some EFS offered in</td>
<td></td>
<td>Part of paper</td>
<td>20-25</td>
</tr>
<tr>
<td>University of Waikato</td>
<td>TEPC 120 Environmental education</td>
<td>First year of B. Teaching</td>
<td>7.5/360</td>
<td>158</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------</td>
<td>---------------------------</td>
<td>--------</td>
<td>-----</td>
</tr>
<tr>
<td>Some EE/EFS included in science, technology and social studies education papers</td>
<td>Second and third year B. Teaching</td>
<td>Part of papers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victoria University</td>
<td>CUST 853 &amp; 854 EOTC</td>
<td>Grad Diploma Secondary</td>
<td>20% of paper</td>
<td>26</td>
</tr>
<tr>
<td>CUST 839 Health and PE</td>
<td>Grad Diploma Primary</td>
<td>2-3 hours in paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EOTC</td>
<td>B. Teaching</td>
<td>2-3 hours in paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUST 233 Social studies</td>
<td>Third year of B. Teaching</td>
<td>22/532 50% of paper is EE/EFS</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>CUST 835 Social studies</td>
<td>Post Grad Diploma – Primary</td>
<td>12/156 10% of paper is EE/EFS</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>CUST 869 Social studies</td>
<td>Post Grad Diploma – Secondary</td>
<td>7/156 5% of paper is EE/EFS</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>CUST 870</td>
<td>Post Grad. Diploma – Secondary</td>
<td>10/156 10% of paper is EE/EFS</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>CUST 878 Geography</td>
<td>Post Grad Diploma – Secondary</td>
<td>6/156 30% of paper is EE/EFS</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Some EFS</td>
<td>Grad Diploma</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the reported information it is apparent that specific papers in EE/EFS are offered at the Universities of Auckland, Canterbury and Waikato. Total student participation in these papers was 216 paper enrolments. Further to this, the reported data indicates EE/EFS is part of a diverse range of education papers at four universities (Canterbury, Otago, Victoria and Waikato) in an infused approach that is difficult to quantify.

An analysis of what is known about EE/EFS offerings, in the six New Zealand universities that offer mainstream primary and secondary teacher education, reveals the following:

- Auckland – one relatively new dedicated environmental education paper at secondary level, which attracted eight students in 2006. Possible occurrence of EE/EFS within other papers;
- Canterbury – two specific papers in EE/EFS at Graduate Diploma level, which attracted significant numbers of students in 2006. These papers have been offered for some years. Two other papers have some EE/EFS in them;
- Massey – no current offerings reported. It is known there have previously been papers involving EE/EFS offered;
- Otago – one paper in the primary degree (offered every second year) that contains a significant amount of EE/EFS along with outdoor education. Most primary teacher education students given at least one workshop on EE/EFS. Science and technology education papers contain some EE/EFS;
- Victoria – no specific papers on EE/EFS but papers in Health and PE, Social Studies and Science incorporate varying amounts of EE/EFS from a few hours to 50% of the paper. Staff are interested in establishing a specific paper in EE/EFS.
- Waikato – one specific paper in EE/EFS at first year of the teaching degree that all students take. This paper has been running for three years and ensures all primary teacher education students undertake significant learning in EE/EFS. Further EE/EFS is offered in certain science and technology education papers.

Some EE/EFS is offered in one paper at the Christian-based Bethlehem Tertiary Institute.
2.6 Implications and recommendations

This brief look at the prevalence of EE/EFS in New Zealand teacher education has revealed some activity is occurring in some teacher education institutes. Most universities offering teacher education programmes offer something in EE/EFS at primary and/or secondary level, but in most cases it is fairly limited in scope or in numbers of students accessing the EE/EFS. Recent initiatives at Auckland, and more particularly at Waikato, show increased activity in teacher education EE/EFS.

It can be concluded from this study that there is no teacher education institution in New Zealand that guarantees every teacher graduate has had access to EE/EFS during their study. There are many teachers emerging from our teacher education institutions who have had some exposure to EE/EFS, often couched through curriculum area learning, who hold the promise to be in a position to deliver EE/EFS in our schools.

However, if the New Zealand education system is to be positioned to respond to the calls of Agenda 21 and more recently UNESCO (2005), more structured offerings in EE/EFS in pre-service teacher education must be encouraged. Similar calls for more pre-service teacher education in EE/EFS have been made in other countries (Van Petegem, Blieck, Imbrecht, & Van Hout, 2005).

Therefore this report recommends:

- faculties of education in all teacher education providers, at least at primary and secondary level, review their offerings in EE/EFS, with a view to ensuring all of their graduates have access to EE/EFS training during their study programme;
- these offerings are informed by the latest international research and practice in EE/EFS, and the providers consider a multi-disciplinary approach to their offerings;
- these offerings provide a well-defined pathway for teacher trainees who wish to develop strength in EE/EFS in their future practice in schools;
- teacher education providers model the sharing of knowledge and resources to enhance a coherent approach to EE/EFS for all teacher trainees;
- further research be conducted to examine the effectiveness of existing EE/EFS teacher education provision in its translation into schools.
3.0 The positioning and status of EE/EFS in the New Zealand school curriculum

3.1 Rationale for indicator
The status of a subject within a curriculum provides an indication of how important a government believes it is for the education of its nation’s children. As the curriculum may at least mandate what should be taught and learnt, examined and reported against, it is potentially very influential in what happens in our schools.

The curriculum status of EE/EFS has been described in many countries as marginalised and not mainstream, and this has been argued to have limited the development of EE/EFS in those countries (Chapman, 1998; Chatzifotiou, 2002; Gough & Scott, 2001; Tilbury, 1998). A study in 2002-3 in New Zealand schools (Cowie et al., 2004) reported that teachers felt similar issues existed in this country.

Therefore it seemed important, in the early years of the UN Decade of Education for Sustainable Development, to document the history and current status of EE/EFS in the New Zealand curriculum.

3.2 Introduction
This report provides an overview of key developments in curriculum, policy, and practice of environmental education/education for sustainability (EE/EFS) in New Zealand schools from the 1970s to the present. The report draws from, and updates, an earlier summary first published in Bolstad & Baker (2004) under contract to the Ministry of Education.

In preparing this report, an interview was also carried out with two senior Ministry of Education curriculum and policy advisors, both of whom have held the position of Ministry of Education curriculum facilitator for EE/EFS (Arcus & Hay, 19 February, 2007).

At the time of writing (July 2007), feedback on The New Zealand Curriculum: Draft for Consultation (Ministry of Education, 2006) was being summarised and analysed in preparation for the final phase of re-drafting of the curriculum. This report therefore comments on the positioning and status of EE/EFS in the draft New Zealand...
Curriculum, and discusses some of the feedback submitted to the Ministry following the release of the draft.

However, we cannot comment on the status and positioning of EE/EFS in the final New Zealand Curriculum, as this is not due to be finalised until late 2007.

This report begins by outlining key features of New Zealand’s curriculum context, including the regulatory frameworks underpinning national curriculum and policy development for school education. An understanding of these regulatory and policy context frameworks is essential in order to understand how and why, in concert with particular decisions made by the government and the Ministry of Education, EE/EFS has come to assume its current positioning and status within the national curriculum.

The subsequent discussion of the status and positioning of EE/EFS in this report is ordered chronologically. We begin by examining key developments for EE/EFS in schools, prior to the introduction of the 1993 Curriculum Framework, then discuss the development and impact of the 1999 Guidelines for Environmental Education in New Zealand Schools (Ministry of Education, 1999) and supporting Ministry of Education initiatives through the late 1990s.

Next, we identify recommendations regarding EE/EFS which emerged during the 2000-2003 ‘Curriculum Stocktake’. Finally, we discuss the current visibility and positioning of EE/EFS in The New Zealand Curriculum: Draft for Consultation, and some of the comments and feedback which have been provided by stakeholders in the EE/EFS community.

### 3.3 New Zealand’s national curriculum context

Several waves of national curriculum development and educational policy changes over the past two decades have helped to frame current possibilities for environmental and sustainability education in New Zealand schools. This section provides an overview of New Zealand’s national curriculum context.

New Zealand has an ‘outcomes-focused’ national curriculum. In theory, this means the role of the national curriculum is to specify the outcomes that students should gain from their school learning, with the means to attaining those ends to be determined by
teachers, schools, and communities. This 'outcomes-focussed' view has underpinned all national curriculum developments in New Zealand since at least the late 1980s.

An outcomes-focussed view of curriculum incorporates the idea that the government’s role is to specify the ‘high level’ intentions for school education, while it is schools’ role to design curriculum, teaching, and learning to achieve these intentions\(^1\). It represents a partial decentralisation of curriculum planning from the centre (government) to the periphery (schools and communities).

An outcomes-focussed approach to the national curriculum aligns with other decentralising changes to the regulatory frameworks for New Zealand schools that began in the 1980s. For example, the 1989 ‘Tomorrow’s Schools’ reforms decentralised school governance and management to schools, via boards of trustees (Minister of Education, 1988).

Today, New Zealand schools are regulated by the National Education Guidelines.\(^2\) Schools’ responsibilities with respect to curriculum are largely explained in the National Administration Guidelines (NAGs), in particular, NAG 1, which states:

> Each Board of Trustees is required to foster student achievement by providing teaching and learning programmes which incorporate the New Zealand Curriculum (essential learning areas, essential skills, attitudes and values) as expressed in National Curriculum Statements (Ministry of Education, 2007).

These regulatory frameworks constitute the legal requirements for all New Zealand schools today, and underpin national curriculum and policy development for school education.

Through the late 1990s and into the development of The New Zealand Curriculum: Draft for Consultation, there has been a continued emphasis on (and strengthening of) the message that schools and their communities have the freedom and flexibility to

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\(^1\) By contrast, some countries take a more ‘prescriptive’ approach, where the national or state curriculum specifies in detail exactly what content schools are to teach, what teaching and assessment methods are to be used, and how much time is to be allocated to various subjects.

\(^2\) These were first established in 1989 and underwent various amendments in 1993, 1998, 1999, and 2001.
design and tailor their own curriculum, provided these are within the specifications of
the national curriculum and regulatory requirements.

However, there are widely acknowledged tensions between this ‘ideal’ scenario, and
the reality that the way schools design their curriculum can be shaped or constrained
by other forms of accountability for what is taught to students. These include
assessment accountability requirements, and a wide variety of other political and
social pressures and expectations about what students should be learning and doing
at school (see for example Hall, 1996; Lee, 2003; see for example Prideaux, 1993).

3.3.0 The status and positioning of EE in the New Zealand Curriculum prior to 2006
This subsection describes the status and positioning of EE in the New Zealand
Curriculum prior to the release of The New Zealand Curriculum: Draft for Consultation
(Ministry of Education, 2006). It identifies key developments from the 1970s and
1980s, through to 2006.

3.3.1 Environmental education prior to the 1993 New Zealand Curriculum Framework
During the 1970s and 1980s there was no formal policy or curriculum guideline for
environmental education.

However, those with an interest in environmental education were actively forming
networks, sharing ideas, and lobbying the government to support the development of
environmental education in the curriculum, and some environmental education
practice was occurring in schools.

Some significant developments prior to 1993 included the following:
• a number of New Zealand primary and secondary schools developed courses and
  programmes dealing with the environment or environmental issues (Dowling,
  1993);
• between 1976–1978 a series of meetings on environmental education were
  facilitated by tertiary institutions, the Department of Education, and the
  Commission for the Environment (Dowling, 1993);
• in 1981 the Department of Education held a conference on ‘environmental
  education across the curriculum’;
• in 1984 the New Zealand Association of Environmental Education (NZAEE) was
  formed;
• in 1991, the New Zealand Natural Heritage Foundation (NZNHF) hosted an international conference on environmental education in Palmerston North (Springett & Hall, 1991).

In the absence of an existing policy statement or curriculum for environmental education from the Ministry of Education, the NZNHF developed its own environmental education curriculum for schools.

The foundation’s "bicultural, integrated, whole school curriculum of environmental education" (Springett, 1991, p. 216) was built around the concept of the 'eco-school'. An important part of the eco-school philosophy was to provide schools with the tools and infrastructure to make things work in their own environment and their own community.

This meant involving the full school community (including students, teachers, parents, Boards of Trustees, and the wider community) in examining the school as a system, working together through consultation, and agreeing to monitor the resource management practices of the school as part of the school’s environmental education programme (Springett & Buchanan, 1991). The NZNHF’s 'eco-school' curriculum was trialled with several schools.

3.3.2 Introduction of the New Zealand Curriculum Framework (1993)
By the early 1990s, work was underway to develop New Zealand's first national curriculum for all schools. This was to comprise a high-level statement of the government's intentions for the curriculum, the New Zealand Curriculum Framework (Ministry of Education, 1993), and a series of 'national curriculum statements' for each of the mandatory learning areas (subjects) to be included in the curriculum.

In 1991, a draft version of the New Zealand Curriculum Framework included a proposed learning area called “Science and the Environment”. However, when the final version of the New Zealand Curriculum Framework was released in 1993, environmental education had been separated from science education.

“Science and the Environment” became Science in the New Zealand Curriculum (Ministry of Education, 1993), and environmental education did not appear as one of the seven curriculum learning areas. The absence of a discrete learning area for environmental education in the curriculum reflected a debate at the time over whether
environmental education should be a stand-alone learning area, or whether it would be most effective when infused across the curriculum (Barker, 2001).

New Zealand’s curriculum took the latter approach. Direct references to the environment occurred in several essential learning areas, particularly science, social studies, and technology.

In 1993, New Zealand delegates attended a conference on environmental education and teacher education involving 13 Asia-Pacific nations. In a national report prepared for the conference, New Zealand was described as having “no coherent, directed approach to environmental education in primary schools” (NIER, 1993, p. 79), and “a lack of systematic approach” in secondary schools.

However, it was noted that some primary and secondary teachers or schools with a special interest in environmental education were providing various environmental education opportunities for students. The report also noted that the Ministry of Education had established a working party to prepare a guideline statement on environmental education.

The NIER country report for New Zealand highlighted some environmental education initiatives involving groups such as NZNHF, other community groups, NGOs, and universities. Another initiative of this type began in 1993, when the first three ‘Enviroschools’ were established in Hamilton by a taskforce including teachers, the Department of Conservation, Hamilton City Council, Environment Waikato, and the University of Waikato.

The Enviroschool project was an indirect derivative of the NZNHF’s ‘eco-school’ concept (Keown, McGee, & Carstensen, 1995). Though the NZNHF was involved in seeding the Enviroschool initiative, the two developed separately from 1993 onwards.

3.3.3 Towards an environmental education guidelines document

In 1994/1995 the Ministry of Education commissioned the writing of a guidelines document that would give a rationale and direction for environmental education in

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3 It is interesting to note that similar debates had occurred prior to the development of the Technology curriculum. Originally it was thought that technology was a subset of other subjects, but exploration of the nature of the subject moved the curriculum developers to see technology as a subject/domain in its own right. (Alister Jones, personal communication, 22 Feb 2007)
schools within the *New Zealand Curriculum Framework* and associated curriculum documents (Law & Baker, 1997).

Though completed in 1995, the draft environmental education guidelines were not published immediately, partly because some national curriculum statements (Health and Physical Education, and the Arts) were still under development, and the guidelines would need to be reworked to take account of these (Ministry for the Environment, 1998).

In the meantime, the Ministry for the Environment produced several significant documents concerning education and the environment. The first of these was a statement on the government’s strategy for the environment (Ministry for the Environment, 1995). One of the goals stated in the *Environment 2010 Strategy* was:

…to encourage environmentally responsible behaviour and informed participation in decision-making by promoting environmental education throughout the community (Ministry for the Environment, 1995, p.57).

Two specific actions proposed to achieve this goal were:
- the development of a strategy for an integrated national approach to environmental education across all sectors of the community;
- an environmental education guideline statement for schools.

The first of these proposed actions came to fruition when the Ministry for the Environment released a draft discussion document, and later, a final version, of a national environmental education strategy called *Learning to care for our environment: Me ako ki te tiaki taiao* (Ministry for the Environment, 1996, 1998). At least three of the six priorities outlined had strong implications for environmental education in the school sector.

These priorities were:
- **Priority one** was to encourage the integration and co-ordination of environmental education activities;
- **Priority three** was to maintain and enhance the capacity of tangata whenua (through formal and non-formal education) to fulfil their responsibilities as kaitiakitanga;
• **Priority four** was to incorporate the aims of environmental education across the school curriculum.

Two explicit government actions linked to this last priority were:
• The Ministry of Education was to undertake the preparation of guidelines for environmental education in schools, with endorsement from the Ministry for the Environment, Department of Conservation, and Te Puni Kokiri;
• The Ministry for the Environment, as the administrator of the government’s Sustainable Management Fund (SMF), was to encourage projects which aimed to develop resource materials which are fully integrated into the school curriculum.

As a result of priority one, the Ministry for the Environment began to host annual meetings for local government environmental education providers. However, this co-ordination did not extend to NGOs or Ministry of Education providers. Through such meetings, several local and regional councils became interested in a co-ordinated approach to environmental education in their areas.

The Enviroschools programme was seen as one vehicle for doing this, and encouragement from other councils led the Hamilton City Council to produce an SMF-funded training programme and kit of resources for the programme to be made available nation-wide.

With as yet no official guidelines on environmental education from the Ministry of Education, a mandate for school-based environmental education could be read into several statements in the *New Zealand Curriculum Framework*.

For example, schools’ ability to develop their curriculum “to take account of local needs, priorities, and resources…” (Ministry of Education, 1993a, p. 4) suggested an avenue for engaging with local environmental organisations. Further, the *New Zealand Curriculum Framework* stated that the curriculum must help students to be adaptable and play their full part in a changing environment, with reference to gender and cultural issues, developments in technology, and environmental concerns (Ministry of Education, 1993a, p. 28).
It is important to realise that the New Zealand Curriculum Framework was never mandated. However, many of the new curriculum documents (including Science, Technology, and Social Studies), all of which were mandated, included statements about the use of authentic contexts and local environments for curriculum learning activities, and achievement objectives that could align with an environmental education teaching focus.

3.3.4 Release of the Guidelines for Environmental Education in New Zealand Schools (1999)

In 1999, under pressure from the Ministry for the Environment and the EE community, a revised version of the draft environmental education guidelines was finally published and distributed to schools (Ministry of Education, 1999). The release of these guidelines gave further direction for schools interested in integrating EE into their school curriculum, but stopped short of making it mandatory in a curriculum already widely perceived to be ‘over-crowded’.

The guidelines provided examples for ways in which EE teaching could be linked to the seven Essential Learning Areas (ELAs) of the curriculum, and to the ‘essential skills’ which all New Zealand students were to develop through their compulsory education. The guidelines suggested five aims for EE, informed by the Tbilisi Declaration (UNESCO, 1978), in developing students:

- awareness and sensitivity to the environment;
- knowledge and understanding about the environment;
- attitudes and values towards the environment;
- skills in identifying and solving environmental problems; and
- a sense of responsibility through participation and action.

The guidelines indicated a balanced EE programme should address three dimensions of environmental education: education in the environment; education about the

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4 Prior to the Education Amendment Act 1998 (No 2), such foundational curriculum policy statements could not be officially mandated.

5 As an example, an achievement aim in Science in the New Zealand Curriculum’s “Making sense of planet Earth and beyond” strand was that “students will use their developing scientific knowledge, skills, and attitudes to: Investigate how people’s decisions and activities change planet Earth’s physical environment, and develop a responsibility for the guardianship of planet Earth and its resources.” (Ministry of Education, 1993, p. 106)

6 These included skills in the areas of: communication, numeracy, information and problem-solving, as well as: self management and competitive skills, social and co-operative skills, physical skills, and work and study skills.
environment; and education for the environment. They further signalled that four key concepts should underpin EE: interdependence, sustainability, biodiversity, and personal and social responsibility for action, and also described ways in which Maori worldviews are embodied in these concepts.

These worldviews include a strong connection to the environment, both physically and spiritually, a belief in the interconnectedness of the physical, living and spiritual worlds and traditional conservation practices. Finally, the guidelines indicated multidisciplinary, holistic teaching and learning approaches are appropriate for meeting the aims of EE, and suggested a process for schools to plan their EE programmes.

3.3.5 Professional development in support of the guidelines

In the late 1990s through the early 2000s, the Ministry of Education funded two professional development programmes: Environmental Education Professional Development (1999–2002, Christchurch College of Education), and Professional Development for Sustainable School Organic Gardens (2002, Massey University and the Soil and Health Association of New Zealand).

The Environmental Education Professional Development programme involved a three-step process. In 2000, several educators from around New Zealand were trained as EE facilitators. In 2001, facilitators in each region held two two-day workshops for pairs of teachers from selected schools in their region. More than 200 schools took part in this programme.

In 2002, facilitators selected approximately 64 ‘pilot schools’ to develop EE programmes with the support of their school facilitator. The Sustainable School Organic Gardens project involved 24 urban schools and 12 kura kaupapa Maori throughout New Zealand. The programme included an emphasis on Maori perspectives on the environment.

Community-based training sought to develop school facilitators’ understanding of EE and sustainable growing from Maori and western perspectives, and concentrated on integrated curriculum approaches, along with organic and Maori gardening practices (Davies, Delidjani, & Moeed, 2002).
3.3.6 Summary: The positioning and status of EE in the New Zealand Curriculum prior to 2007

To summarise, the 1980s through 2000 and beyond saw a number of developments in EE policy, curriculum, and support, all of which created opportunities to support New Zealand schools to develop their own environmental education teaching and learning programmes, provided schools were interested in doing so.

Anecdotal evidence suggested that EE practice varied considerably across New Zealand schools, with some doing little or no EE, and others developing extensive EE programmes as a result of their involvement in Enviroschools or other such initiatives.

In 2002 the Ministry of Education commissioned research to evaluate the status of EE in New Zealand schools (Bolstad et al., 2004). The evaluation included a review of New Zealand and international literature, a survey of 367 teachers at 193 New Zealand schools who were involved in environmental education in some way, and case studies in eight different schools and kura.

The evaluation found that while many teachers and schools expressed enthusiasm about environmental education, the focus of teachers’ environmental education programmes, where these existed, tended to be education ‘about’ the environment, with attention to encouraging students’ care and respect for the environment.

Although some teachers involved their students in taking actions ‘for’ the environment, there was less evidence that student decision-making was a central facet of these actions. Teachers suggested they had insufficient time and resources to plan for action and to take action as part of their environmental education programmes.

Some teachers also felt the ambiguous nature of environmental education in the New Zealand Curriculum Framework created tensions for including it in their school or classroom teaching programmes. The eight case studies found a range of examples of environmental education practice in a diverse group of school contexts. These schools were each at different stages in their journey towards becoming an ‘environmental education school’, and the success and visibility of environmental education differed across the schools.

Common factors leading to the schools’ involvement in environmental education included:
- having one or more staff members with a personal passion for environmental education;
- the school’s involvement in formalised environmental education programmes (such as the Ministry of Education environmental education professional development programme);
- and a desire to use or protect the school’s local environment as part of the school’s teaching and learning.

The schools’ values, culture, and philosophy were often consistent with the goals and aims of environmental education espoused in the international literature and the guidelines. In many schools, ‘values’ were an explicit feature of the school’s language and culture. Typically this involved ‘valuing and respecting yourself, valuing and respecting others, and valuing and respecting the environment’.

Māori knowledge and values had an intentional and visible role in the kura kaupapa Māori and four of the seven mainstream case study schools. The schools also tended to have proactive approaches to staff professional development, and encouraged student leadership and responsibility. Most of the case study schools were moving towards formalising their commitment to environmental education through its inclusion in school policy and planning documents.

The evaluation concluded that New Zealand schools would benefit from:

- further strategies to support communication and dissemination of information about environmental education, including information about the guidelines,
- and strategies to support networking and sharing of ideas and information about ‘effective’ environmental education practice.

Other areas highlighted for further consideration were:

- building on the initial professional development support some schools had received in environmental education;
- further consideration of the role of curriculum integration with respect to environmental education;
- identification of specific areas where schools need resourcing for environmental education;
- coordination in the development and delivery of programmes and resources to support environmental education in schools; and
• consideration of the visibility and status of environmental education in the New Zealand Curriculum.7


Around the period 2000-2003, the Ministry of Education undertook an extensive ‘Curriculum Stocktake’, comprising a programme of research and review to analyse existing issues and future directions of the New Zealand Curriculum. The Curriculum Stocktake Report noted:

There have been requests for further essential learning areas. An analysis of these requests against government priorities and the needs of current and future society indicates that within the curriculum, the following future focused themes need to be more explicit:

- social cohesion (including developing resilience and a sense of social connectedness);
- citizenship (local, national, and global);
- education for a sustainable future (including sustainable development and environmental sustainability);8
- bicultural and multicultural awareness;
- enterprise and innovation; and
- critical literacy (including digital literacy). (Ministry of Education, 2002)

The Stocktake Report suggested:

Most of these future-focused curriculum themes can be emphasised in curricula without becoming extra essential learning areas. These themes can also be reflected in the purpose of the national curriculum.

The report recommended that “specialist cross-disciplinary teams should audit the outcomes (aims and achievement objectives from the curriculum statements/nga

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7 The research has been critiqued by Chapman (Chapman, 2004) for insufficient challenging of the “aims of EE” given in the guidelines, not giving a precise definition of environmental education, and “assuming best practice is good practice” (p. 25).

8 At this time the Ministry of Education began to change their use of terminology from environmental education to education for sustainability, to reflect what they felt was a movement worldwide in that direction, and the increasing visibility of ‘sustainability’ in government and popular parlance.
tauaki marautanga) against the purposes of the curricula and against the future-focused curriculum themes”.

The outcome of this ‘Curriculum Stocktake’ was the development of a newly refined and streamlined national curriculum document (in the English language), released in draft form in November 2006 and due to be finalised by late 2007.

Unlike the previous national curriculum, the draft curriculum comprises a single document that includes high-level goals and aspirations for the New Zealand Curriculum, as well as links to specific learning objectives for each of the essential learning areas. A parallel national curriculum in te reo Maori, Te Marautanga o Aotearoa, is also under development.

A draft version had not been released at the time this report was being prepared, and therefore this report is unable to comment on the status and positioning of EE/EFS in the Maori medium curriculum.

3.5 The positioning of EE/EFS in the draft New Zealand Curriculum (2006)

As recommended in the Curriculum Stocktake Report, education for sustainability has been integrated and emphasised in the draft curriculum in a variety of ways that do not include adding it as an additional essential learning area. However, the draft does include one new ELA, “Learning languages” (learning a language other than English).

The document is divided into three sections. The first section (pages 8 - 25) outlines the key elements of the national curriculum

• a vision;
• the core principles on which the curriculum is based;
• values New Zealanders expect schools to model and foster;
• key competencies for learning and life;
• brief descriptions of the eight learning areas;
• pedagogy that creates the conditions for effective learning.

The second section (pages 26-33) discusses a number of considerations for designing a school curriculum. The third section (pages 34-end) sets out the achievement objectives for each learning area in a series of fold-out charts.
As with the earlier *New Zealand Curriculum Framework* and national curriculum statements, it is possible to identify phrases and statements in the draft *New Zealand Curriculum* that support or align with the intentions of EE/EFS. Such statements in each of the three sections are identified below.

**EE/EFS in section 1 (p. 8 – 25)**

Section 1 includes both overt and implicit references to the environment and environmental sustainability.

Page 8: “**A Vision**” includes the statement that young people will be “actively involved… [as] contributors to the well-being of New Zealand – social, economic, and environmental."

The “**Principles**” section (p. 9) does not include any overt references to education for sustainability. However, in the “**Values**” section (p.10) there is a specific value entitled: “Care for the environment (the Earth and its interrelated ecosystems).”

Other aspects of the values section which could implicitly be linked with EE/EFS include the value of “community and participation for the common good”, and the goal that through their learning experiences, “students will develop their ability to critically analyse values and actions based on them; discuss disagreements that arise from differences in values and negotiate solutions; and make ethical decisions and act on them”.

The “**Key Competencies**” (p. 11-12) are a significant new addition to the New Zealand Curriculum. These are a local adaptation of those identified by the OECD’s DeSeCo project (Rychen & Salganik, 2003) as necessary for a successful life and well-functioning society in the 21st century. The proposed competencies are: thinking, managing self, relating to others, participating and contributing, and using language, symbols and texts.

Although these key competencies replace the “essential skills” of the previous curriculum, they are not a direct substitute:
Competencies are more complex than skills. Capable people draw on and combine all the resources available to them: knowledge, skills, attitudes and values. (NZ Curriculum draft, p.11)

This focus on being ‘capable’ shifts the emphasis of education from getting knowledge for its own sake to being ready, willing and able to use knowledge and skills to achieve personally meaningful tasks and learning goals, both now and throughout life.

Perhaps the most visible EE/EFS connection in this section of the draft curriculum is in the key competency of “Participating and contributing”, which states that in developing this key competency, students [will come to] “…understand the importance of balancing rights, roles, and responsibilities and of contributing to the quality and sustainability of social, physical, and economic environments”.

The section which provides an overview of the learning areas (p. 13-23) includes further references to the environment and environmental sustainability (and the role of education in supporting this) as shown in Table 3.1.

<table>
<thead>
<tr>
<th>Learning area</th>
<th>Statements related to EE/EFS</th>
</tr>
</thead>
</table>
| Health and physical education      | • One of four independent concepts at the heart of health and physical education is “Attitudes and values”, and this includes “care and concern for other people and the environment.”  
• One of the strands of this learning area is called: “Healthy communities and environments, in which students contribute to healthy communities and environments by taking responsible and critical action.” |
| Science                            | • One of the reasons given in response to the question “why study science?” is “to use scientific knowledge and skills to make informed decisions about the application of science and its implications with regard to their own lives and environment.”  
• The “Living World” strand says “students will learn about the impact of humans on all forms of life. As a result, they are able to make informed decisions about significant biological issues.”  
• The “Planet Earth and Beyond” strand says: “Students need to know and understand these [cyclic processes and systems that occur on Earth and in space] and to appreciate that modifying them affects all living things.” |
• The “Physical World” strand says that by understanding physics, “people are able to design technological solutions in response to a wide range of contemporary issues and challenges.”

• The “Material World” strand says: “By using their knowledge of chemistry, people can predict and control changes in matter, leading to technological advances and the possibility of a sustainable future.”

| Social sciences | • In the “Place and Environment” strand, “students learn about how people perceive, represent, interpret and interact with places and environments. They come to understand the relationships that exist between people and the environment.” |

| Technology | • Technology “is influenced by and in turn impacts upon the cultural, ethical, environmental, political, and economic factors of the day, both local and global.”

• In developing “Technological knowledge”…“students develop an understanding of products, systems, and environments…”, and develop an understanding of resources, including “their current and long-term availability and viability.”

• In the “Nature of Technology” strand, “students explore the characteristics of technology as a field of human enterprise. This involves an understanding of: historical and contemporary technological developments in terms of their intellectual, social, technical, and environmental impacts and implications.” |

EE/EFS in section 2 (p. 26 – 33)
The section titled “designing a school curriculum” (p.26) includes modified versions of the future-focussed themes from the Curriculum Stocktake Report. These are described as “significant themes” around which schools could build their school curriculum to integrate learning areas and the key competencies. The first of these “significant themes” is “Sustainability”, wherein:

Students investigate the long-term impact of social, scientific, technological, economic, or political practices and consider alternatives that might prove more durable for the economy, for society, and for the environment. (p. 26)

The other four significant themes are: citizenship, enterprise, globalisation, and critical literacies.
EE/EFS in section 3 (p.34 – end)

The final section of the draft curriculum includes fold-out pages showing all of the achievement objectives for each of the essential learning areas, grouped according to level. There are several achievement objectives relevant to EE/EFS at each level, primarily within the essential learning areas of science, technology, social sciences, and health and physical education.³

3.5.1 Summary of the positioning and visibility of education for sustainability in the Draft New Zealand Curriculum

The analysis above illustrates that aspects of EE/EFS do appear throughout the draft New Zealand Curriculum. However, as a senior Ministry of Education policy advisor noted:

It relies on people wanting to find it, being able to find it, and being able to use it. For those who don’t want to or don’t know to look for it, it may be glossed over as a significant theme, [although] they might do spots of it here and there. (Arcus & Hay, 19 February, 2007)

In addition to the overt references to environment and sustainability, it is possible to see how other aspects of the draft curriculum could be interpreted as coherent with, or contributing towards, EE/EFS. For example, in the “Vision” statement (p.8)

…if students are “positive about their own identity” and their identity is tied up to the land and environment, then that’s a contributor to sustainability. If you’re literate and numerate, you’re more likely to be able to foster sustainability. Those things aren’t directly stated – but there are many implied and connected possibilities. (Arcus & Hay, 19 February, 2007)

Similarly,

The other “significant themes” (p.26) are also a key part of sustainability….without those you can’t understand or achieve sustainability. (Arcus & Hay, 19 February, 2007)

However, it was acknowledged that

…it requires something more than a curriculum, to draw a school[‘s environmental education teaching and learning] together, for example, [into] an Enviroschool. A school won’t be encouraged to be an Enviroschool because of this [curriculum document]. It will be

³ These are too numerous to detail in this report.
something else that encourages them to become an Enviroschool.
(Arcus & Hay, 19 February, 2007)

3.6 Can and should the curriculum compel all schools to teach EFS?

Any analysis of the role and positioning of EE/EFS in the New Zealand Curriculum inevitably leads back to the same questions that have been part of the discourse of EE/EFS in New Zealand school education for decades. Namely: Should the New Zealand Curriculum ensure EE/EFS is part of teaching and learning in all New Zealand schools, for all New Zealand students? And if so, can it compel this?

The question of 'should' may be the easier of these two questions to answer. For example, feedback on the draft curriculum from a group of environment and sustainability educators argues:

Economic, social, and environmental sustainability is pivotal to New Zealand’s future. It is a key reason for education in the formal sector.
(Barry, 2006)

and

Sustainability is not an abstract theory about the future. It needs to be clearly articulated and demonstrated throughout the curriculum.
(Barry, 2006)

Furthermore, in the months since the draft’s release, the political profile of ‘sustainability’ appears to be on the rise for the current government. (Clark, 2007)

However, the question of whether the curriculum itself can compel schools to educate for sustainability is more vexed. At present, the government has signed off on a structure for a national curriculum in which schools have significant freedom and responsibility to shape their own curriculum, as long as this incorporates the learning areas and key competencies and is consistent with the principles and vision outlined in the New Zealand Curriculum.

This curriculum structure precludes the government from directly compelling schools to develop an EE/EFS (or any other) ‘flavour’ to their school curriculum.
This [curriculum] really supports all sorts of schools to develop into [for example] Enviroschools, sports academies, drama schools, and all those other sorts of foci that people might choose. And it doesn’t direct you towards any one in particular. And those that are listed [as “significant themes”] in “Designing a School Curriculum”, none of them are mandatory, they are just conceived as “possibilities might include…” (Arcus & Hay, 19 February, 2007)

In the shift from the *New Zealand Curriculum Framework* to *The New Zealand Curriculum: Draft for Consultation 2006*, there was certainly an intention to raise the visibility of sustainability vis-à-vis the five “significant themes”.

That was an absolute intent of the Curriculum Stocktake – that those themes should be running through [the curriculum]. However, the Curriculum Stocktake was only ever “recommendations”. (Arcus & Hay, 19 February, 2007)

As a result;

The curriculum draft leaves it to the school – the draft says schools are to design curriculum based around their needs and interests – sustainability is a theme you “could” choose – it does not say “should”. You can’t compel. A decision has been made by government to have a broad, outcomes-focussed curriculum where schools make those decisions, not central government. (Arcus & Hay, 19 February, 2007)

3.7 How does the Ministry of Education support schools to develop EE/EFS?

The Ministry of Education supports schools to develop EE/EFS in a range of ways consistent with the “school-based curriculum development” approach embodied in the national curriculum.

The first, as described above, is the visibility of statements and themes related to the intentions of EE/EFS throughout the draft *New Zealand Curriculum* (whether or not EE/EFS is visible and significant *enough* in the draft *New Zealand Curriculum* is an open question).
This para-curricular support includes:

- funding for professional development about what EE/EFS is, why it is important, and how it can be incorporated into school curriculum, as well as teaching and learning practice; and
- funding to support the development of tools and resources to assist schools to do this. Currently, the Ministry funds three specific initiatives:
  - Enviroschools
  - EFS advisers through School Support Services
  - Mātauranga taiao, a new initiative to develop EE/EFS in Māori medium education.

The Ministry is also funding the development of achievement standards in EE/EFS. These have long been lobbied for by the EE/EFS community. Work on these standards began (and was suspended for a period) several years ago, before being recently resumed. Draft standards have been completed and await approval for release.

The development of EE/EFS achievement standards is fairly significant, as these will be the first achievement standards to have been developed for an area that was neither one of the “conventional” school subjects (Ministry of Education, 1999) under the previous qualifications system (School Certificate, Sixth Form Certificate, and Bursary), nor a subject with an existing curriculum statement (e.g. social studies).

There is a view amongst some in the EE/EFS community that the development of EE/EFS achievement standards will help to raise the status and visibility of EE/EFS in the senior secondary curriculum, where it has struggled to develop legitimacy amongst the “traditional/conventional” senior secondary subjects and disciplines.

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10 The Enviroschools Foundation is a charitable trust that provides support and strategic direction for a nationwide environmental education programme. The foundation has received funding through grants and sponsorship from a range of sources, including the MfE Sustainable management Fund, the Tindall Foundation, The Vodafone New Zealand Foundation, and recently, the Ministry of Education.

11 Achievement standards are the assessment standards used in the National Certificate of Educational Achievement (NCEA). The NCEA is the main qualification associated with the last three years of secondary school and has three “levels” – Level 1 (generally Year 11), Level 2 (generally Year 12), and Level 3 (generally Year 13).

12 One exception may be Media Studies, which had neither a curriculum statement nor a prior existence as a bursary subject. However, Media Studies was a Sixth Form Certificate subject, and there had been a history of lobbying for it to become a Bursary subject. It was probably on this basis that it was included in the list of subjects to have achievement standards developed. (Horrocks & Hoben, 2005)
Given that the culture of assessment and curriculum at the senior secondary level is one which is used to dealing in clearly defined traditional subjects and disciplines (Bolstad, 2005), the development of “interdisciplinary” achievement standards (as the EE/EFS standards are considered to be) is likely to provoke a variety of questions. For example, to which “domain” do these standards belong? Within schools and departments, who is qualified to teach towards, and/or assess using, these standards? It remains to be seen whether the development of the EE/EFS achievement standards will assist in raising the profile, status, and prevalence of EE/EFS at the senior secondary level.

3.8 What are the prospects for further strengthening of the positioning and visibility of EFS in the New Zealand Curriculum?

It is too early to predict the outcome of feedback and subsequent re-drafting of the New Zealand Curriculum. However, Ministry of Education policy advisers suggested “sustainability” and the Treaty of Waitangi were two areas of significant feedback in public submissions on the draft, with submitters feeling these areas were “not visible or not visible enough” in the curriculum. (Arcus & Hay, 19 February, 2007)

While it seems unlikely the basic structure of the draft New Zealand Curriculum will change significantly through the re-drafting process, it is possible that feedback, combined with the recent increase in political priority of “sustainability” for New Zealand’s future, may result in changes that strengthen curricular and para-curricular support for EE/EFS in New Zealand schools.

One such step could include the development of a “guidelines” or other supporting document/resource that provides schools with an enriched and coherent understanding about EE/EFS and how this can be implemented into school curriculum. This could involve updating the Guidelines for Environmental Education in New Zealand Schools to suit the new curriculum environment and to clarify some of the key differences between EE (as it was known in the past) and contemporary EFS.
3.9 Implications and Recommendations

This overview of the development and current status of EE/EFS in the New Zealand curriculum provides an indication that some progress has occurred towards greater inclusion of EE/EFS. Under the philosophy of school-based curriculum development prevalent at present, there exists both the possibility for schools to incorporate much relevant EE/EFS, or to ignore it completely.

What then will be the impetus for schools to engage in EE/EFS? If schools do embrace their potential to develop their own curriculum, will it be the school leadership, the Board of Trustees, or the wider community that will have the greatest say? Or might a genuine EE/EFS approach with all school stakeholders including students be the driver? In reality, a variety of approaches may emerge leading to a range of support mechanisms being necessary to foster EE/EFS in our schools.

Therefore this report recommends:

- a strengthening of professional development opportunities in EE/EFS be pursued at all levels of school decision-making, including most particularly school leadership and governance;
- schools adopt sustainability as a key theme in their curriculum;
- the Guidelines for Environmental Education in New Zealand Schools is re-written to reflect current thinking about EE/EFS and how it can be incorporated into a school-based curriculum;
- research be conducted into how EE/EFS can respond to the need for incorporating values and key competencies into teaching and learning, should these aspects be retained in the new curriculum.
4.0 Whole school approach to EE/EFS

4.1 Rationale for indicator

A whole school approach to EE/EFS has been advocated as the best means to develop and maintain EE/EFS in schools. (Elliot, 1999; Fien, 1995; Tilbury & Wortman, 2005) The New Zealand government’s curriculum guide for delivery of EE/EFS in schools, the Guidelines for Environmental Education in New Zealand Schools, recommends schools adopt such an approach to EE/EFS. (Ministry of Education, 1999)

In 2004 a study by ARIES (Australian Research Institute in Education for Sustainability) examined a number of international whole school sustainability programmes, and concluded “whole school approaches to sustainability have an important contribution to make in shifting our communities towards sustainability.” (Henderson & Tilbury, 2004)

One of the whole school programmes examined in that study was the EnviroSchools programme in New Zealand. This programme began in the 1990’s and promotes a whole school approach as a key factor towards developing a sustainable school. (EnviroSchools, 2007)

Taking a whole school approach to EE/EFS has been argued for in countries such as New Zealand where EE/EFS is not a mandatory learning area in the curriculum. (Bolstad et al., 2004) It has been claimed this would prevent the reliance for promotion of EE/EFS in a school on one or two dedicated teachers, and foster a stronger commitment to sustainability within the school and its community. (Bolstad et al., 2004)

It appears little research has been done into the nature, prevalence or efficacy of whole school approaches to EE/EFS. A previous study in New Zealand schools in 2002-3 found few schools reporting taking a whole school approach. (Cowie et al., 2004)

This report examines the prevalence of whole school approaches in 2006 in New Zealand schools. A project funded by the Teaching and Learning Research Initiative is being undertaken in 2007-8 into the nature and efficacy of whole school approaches to EE/EFS. (C.Eames, pers.comm)
4.2 Research question
The research question that guided research on this indicator was:

How many schools are taking a whole school approach to EE/EFS and what form is that approach taking?

4.3 Research method and sample
Two approaches were taken in gathering data to examine the prevalence of, and engagement with, whole school approaches to EE/EFS in New Zealand schools.

Firstly, drawing largely on the Enviroschools programme as the only recognised programme promoting this approach, the number of schools involved in the programme from 2001-2006 was obtained from the national office of the Enviroschools programme.

This included both schools which were in the facilitated programme and the Enviroschools Awards Scheme, although these two programmes were run somewhat separately until recent years. The data obtained included those schools which had won awards, known as Bronze, Silver and Green-Gold Award levels, reflecting increasing engagement in development as a sustainable school.

The awards scheme is made up of seven elements grouped around the four key areas of school life that underpin the Enviroschools programme. These key areas are organisational management, operational practices, physical surroundings and living curriculum. The broad criteria for gaining these awards, showing level of engagement are:

- Bronze – completion of two key areas;
- Silver – completion of three key areas, including organisational management;
- Green-Gold – completion of all four key areas.

Secondly, this data was triangulated and supplemented by a questionnaire given to members of the Schooling Support Services, employed to provide support to schools in EE/EFS (the EE/EFS advisers). A questionnaire was sent to 11 advisers in May 2006 by email, and nine responses were received, giving a response rate of 82%.
One question in this questionnaire asked the advisers to name the schools they were working with which they felt were taking a whole school approach to EE/EFS. This list of schools was then cross-checked against the list of enviroschools\(^\text{13}\) to see if there were schools taking a whole school approach which were not enviroschools.

### 4.4 Limitations

As described, this research has focused largely on capturing whole school approaches through the Enviroschools programme. Whilst the programme promotes a whole school approach to EE/EFS, from the nature of the data collected in this study there is no certainty that all schools registered as enviroschools are in fact taking a whole school approach. It can be assumed the schools have at least the intention to do so.

One measure indicating greater certainty about use of a whole school approach is the Awards Scheme, as each school must show evidence of a whole school approach in at least two key areas of school life in order to get a Bronze Award. Therefore it can be assumed those schools with awards are taking a whole school approach to at least part of schooling in EE/EFS.

This research is then largely limited to those in the Enviroschools programme. There may be other schools who believe they are taking a whole school approach to EE/EFS, but a complete survey of all schools was beyond the scope of this study. It was also deemed not possible to gain this information through a survey of schools, as the determination of a whole school approach would be difficult to achieve using a questionnaire.

### 4.5 Findings

Data showing the growth in numbers of schools involved in the Enviroschools programme between 2001 and 2006 is shown in Figure 4.1. While growth between 2001 and 2002 was slow, steady increases have occurred since then, culminating in more than 100 schools joining the programme in each of the past two years. The number of enviroschools at the end of 2006 stood at 419, being 16% of all schools in New Zealand. (Ministry of Education, 2007)

\(^{13}\) The Enviroschools programme is referred to with a capital E, but the enviroschools themselves are written with a lower case e.
This data was further analysed by school type, resulting in Table 4.1. As can be seen in the table, the early years of the programme was characterized by the involvement of primary schools. This dominance has continued, such that almost 80% of enviroschools are at the primary level. Intermediate schools were also represented early, but their numbers appear to be stabilizing, currently around 5-7% of all enviroschools.

The first secondary enviroschool appeared in 2003, and over the past four years secondary numbers have risen to represent 10% of the programme. Small numbers of early childhood centres, composite and special schools are also involved.

Table 4.1 Growth in school types as number of enviroschools and as percentage of all enviroschools over the six years to 2006

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Childhood</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1.4</td>
<td>6</td>
<td>2</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Primary</td>
<td>11</td>
<td>92</td>
<td>16</td>
<td>89</td>
<td>93</td>
<td>78</td>
<td>128</td>
<td>80</td>
<td>215</td>
<td>77</td>
<td>325</td>
<td>78</td>
</tr>
<tr>
<td>Intermediate</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td>11</td>
<td>12</td>
<td>10</td>
<td>12</td>
<td>7.5</td>
<td>19</td>
<td>7</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Secondary</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>9</td>
<td>13</td>
<td>8</td>
<td>28</td>
<td>10</td>
<td>43</td>
<td>10</td>
</tr>
<tr>
<td>Composite</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2.5</td>
<td>8</td>
<td>3</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Special</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.6</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>100</td>
<td>18</td>
<td>100</td>
<td>120</td>
<td>100</td>
<td>160</td>
<td>100</td>
<td>279</td>
<td>100</td>
<td>419</td>
<td>100</td>
</tr>
</tbody>
</table>
These numbers are roughly in proportion with the number of schools of each school type in New Zealand. In the main school type categories, primary schools (contributing and full) make up 74% of all schools, intermediates 5% and secondary 13%. This shows primary schools are slightly over-represented and secondary schools slightly under-represented in the Enviroschools programme, but the growth in secondary school involvement in recent years has alleviated that mis-representation somewhat.

As noted earlier, the Enviroschools programme is coordinated from a national office, but delivered regionally by facilitators funded mainly by regional and local government authorities or other environmentally-based organizations. The level of funding available varies per region and has resulted in variable growth of the facilitated programme in each region.

The Enviroschools programme recognizes enviroschools as being supported according to the regions administered by the regional councils or other appropriate territorial authority. Table 4.2 shows the distribution of enviroschools between 2001 and 2006, according to these regions.

Table 4.2 Growth in number of enviroschools by region

<table>
<thead>
<tr>
<th>Region</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northland</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>Auckland</td>
<td>0</td>
<td>5</td>
<td>29</td>
<td>43</td>
<td>81</td>
<td>106</td>
</tr>
<tr>
<td>Waikato</td>
<td>12</td>
<td>12</td>
<td>31</td>
<td>36</td>
<td>53</td>
<td>84</td>
</tr>
<tr>
<td>Bay of Plenty</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>14</td>
<td>22</td>
<td>40</td>
</tr>
<tr>
<td>Gisborne</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hawke’s Bay</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Manawatu-Wanganui</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>9</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Taranaki</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Wellington</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>19</td>
<td>35</td>
<td>52</td>
</tr>
<tr>
<td>Nelson/Marl/Tasman</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Canterbury</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td>West Coast</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Otago</td>
<td>0</td>
<td>0</td>
<td>19</td>
<td>21</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>Southland</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>18</strong></td>
<td><strong>120</strong></td>
<td><strong>160</strong></td>
<td><strong>279</strong></td>
<td><strong>419</strong></td>
</tr>
</tbody>
</table>
This table reflects the original genesis of the Enviroschools programme in the Waikato, spreading first into the Auckland and Bay of Plenty regions, before going nationwide in 2003. The rapid expanse in the Auckland region from 2003 may partly have been due to the Enviroschools Award Scheme, which was then introduced by the Auckland Regional Council for the first time.

As is described above, the award scheme was brought in to guide schools which were unable to gain acceptance into the Enviroschools Facilitated Programme due to lack of funding, but who wished to participate in a whole school approach to EE/EFS. The award scheme is now available to all schools in New Zealand.

When looking at levels of engagement in the Enviroschool programme, currently a school registers to be involved in the programme. Subject to available funding in their region, the school may then receive facilitation to develop their programme from a facilitator employed regionally. This facilitation phase typically lasts for three years.

At any stage after registering in the programme, a school may also register for the awards scheme. The award scheme provides a measure of progress as an enviroschool, and therefore can also be used to gauge a school’s engagement in a whole school approach to EE/EFS.

Up until 2005, schools could apply for the facilitated programme, the award scheme or both, and the two streams were administered separately. However, the two programmes are now administered together and all schools involved are considered to be in the Enviroschools programme. Due to this evolution, data collected in schools’ engagement from 2001-2006 in each programme is complex and this report will focus only on the situation as it stood at the end of 2006.

In 2006 there were 419 schools in the enviroschools programme. Of these 110 (26%) were at the registered stage, 197 (47%) were being facilitated and 112 (27%) were not being facilitated, but had achieved at least a Bronze Award.

In other words, approximately a quarter of the schools in the programme were just beginning, almost half were being facilitated, and a further quarter had reached the milestone of an award, whether they had come through the facilitation programme or the awards scheme.
A further analysis of award schools shows the level of engagement as an enviroschool in 2006, as shown in Table 4.3. The award scheme has been offered since 2003.

Table 4.3 Number of each type of Enviroschools award given to schools 2004-2006

<table>
<thead>
<tr>
<th>Award</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>Total awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronze</td>
<td>10</td>
<td>22</td>
<td>82</td>
<td>69</td>
<td>183</td>
</tr>
<tr>
<td>Silver</td>
<td>4</td>
<td>7</td>
<td>21</td>
<td>34</td>
<td>66</td>
</tr>
<tr>
<td>Green-gold</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: The total awards figure includes all schools with those awards, including those who have also got a higher award.

As can be seen in Table 4.3, there has been significant growth in numbers of schools attaining Bronze and Silver Awards. The number attaining Green-Gold status remains small, but has the potential to rise as more schools attain Silver status and work towards the more definitive whole school approach required to gain a Green-Gold award. The awards provide one indication of the milestones schools progress through as they seek to engage in a whole school approach to EE/EFS.

The enviroschools which have awards to the end of 2006 can be further examined by school type, as shown in Table 4.4.

Table 4.4 Schools gaining an award to the end of 2006, by school type

<table>
<thead>
<tr>
<th>School type</th>
<th>Bronze</th>
<th>Silver</th>
<th>Green-gold</th>
<th>Total</th>
<th>Total as % of all awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Childhood</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Primary</td>
<td>138</td>
<td>53</td>
<td>5</td>
<td>196</td>
<td>77</td>
</tr>
<tr>
<td>Intermediate</td>
<td>9</td>
<td>7</td>
<td>0</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Secondary</td>
<td>21</td>
<td>4</td>
<td>0</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Composite</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Special</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>183</td>
<td>66</td>
<td>5</td>
<td>254</td>
<td>100</td>
</tr>
</tbody>
</table>
This table shows a clear correlation with the number of enviroschools per school type as shown in Table 4.1, indicating awards are being gained by school types in proportion to their involvement in the Enviroschools programme. What is apparent from this data, however, is that primary schools are highly represented at the Silver and most particularly at the Green-Gold Award level.

This may be an indication that primary schools have found it easier to adopt a truly whole-school approach to this point. The small numbers of secondary and composite schools which have achieved Silver or above may conversely indicate the difficulties of taking such an approach in those school environments.

To check the Enviroschools programme was representing the majority of schools undertaking a whole school approach to EE/EFS, a survey was undertaken of the EE/EFS school advisers regarding their knowledge of schools which may be taking such an approach. The EE/EFS advisers who responded to the survey reported working with 125 schools in 2006.

Of these, 32 were thought to be taking a whole school approach, and only four of these were not enviroschools (of these three were primary and one an area school, and all were small rural schools). Of the 28 enviroschools who were thought to be taking a whole school approach, one was an area school, three were secondary and the remainder primary schools. Most of these schools had obtained Bronze Awards, a few had Silver and one school had a Green-Gold Award.

This diversity of awards indicates either schools taking a whole school approach have attained different levels of awards, or there is some inconsistency with regards to provision of the awards. The EE/EFS advisers offer their services to all schools in all regions and therefore it is a reasonable assumption that these advisers can be expected to be in working contact with schools which are active in EE/EFS to the extent that they are taking a whole school approach to EE/EFS.

Therefore, it can be assumed the Enviroschools programme does represent the large majority of, but not all, schools taking a whole school approach to EE/EFS.
4.6 Implications and recommendations

This examination of the prevalence of, and engagement with, whole school approaches to EE/EFS in New Zealand schools has revealed a promising growth trend in the number of schools becoming involved with the Enviroschools programme that promotes such an approach. More than 100 schools have joined the programme in each of the past two years, signalling an interest and demand in professional development to help schools achieve a whole school approach to EE/EFS.

The awards scheme appears to be an indicator of this trend, with increasing numbers of schools being successful in gaining awards. The low numbers of schools attaining the highest award, the Green-Gold, to the end of 2006 provides an indication that few schools may be using a whole school approach to EE/EFS.

This accreditation process of the development of a whole school approach to EE/EFS may be important in ensuring the approach is genuinely being achieved and sustained. Whilst initial uptake occurred in the primary sector and in the Waikato, this uptake is now becoming more balanced throughout the school types and regions.

Variability may remain, as there may be greater challenges to overcome in achieving a whole school approach at senior schooling levels and in regions which are not able to provide sufficient funding for the demand. Further growth in the Enviroschools programme may be limited only by available funding at national level for coordination and at regional level for implementation.

Whilst the Enviroschools programme is being successful in recruiting schools to a whole school approach, and the awards scheme and anecdotal evidence suggests the achievement of good schooling outcomes, little systematic research has been done to date to indicate that the programme is successful in promoting long-term education for sustainability.

This research has also been largely unable to examine other whole school approaches that may currently be in practice in New Zealand.

Therefore, this report recommends:

- continued support for the development of whole school approach programmes such as Enviroschools;
• research into immediate and long-term educational outcomes of the whole school approach to EE/EFS advocated by programmes such as Enviroschools;
• research into the range of whole school approaches being used by schools;
• research into what enables or prevents schools from developing a whole school approach beyond the initial stages e.g. what may constrain a school with an Enviroschool Bronze Award from progressing to Silver.
5.0 Education Review Office Reports

5.1 Rationale for indicator

The Education Review Office (ERO) is a government department whose purpose is to evaluate and report publicly on the education and care of students in schools (Education Review Office, 2007). An ERO Education Review is an external evaluation of the education provided for school students in all state schools, including integrated schools and kura kaupapa Maori.

ERO review reports are presented to school boards of trustees and to the government, and also made available to the public. The Education Review process focuses on school improvement, and ERO reports help schools see what they are doing well, where they need to improve, and what they should do next. ERO reviews each school on average once every three years.

The Education Review focuses on school-specific priorities that allow schools to highlight and have reviewed issues germane to them, as well as on government priorities and compliance issues for all schools. The focus is on student achievement and integrating the review with the school’s own review processes. As such ERO are concerned with how the school reviews its own practices.

Evidence of EE/EFS in the school could then appear in the school’s ERO report in two ways: the reporting of EE/EFS as a school-specific priority highlighted by the school’s own review processes; and as a government priority.

As noted in the chapter on the curriculum status of EE/EFS in New Zealand, the government’s priority for EE/EFS appears somewhat ambiguous. On the one hand government rhetoric appears to be supporting EE/EFS in New Zealand and a set of guidelines exist to enable this to happen. Yet on the other hand, EE/EFS is not mandatory in the school curriculum and has equivocal support in the education sector.

It was of interest in this particular climate of ambiguity to determine the perceptions of the importance of EE/EFS through the eyes of the Ministry of Education’s ERO regulatory process. Of particular interest would be the prevalence of any mention of any EE/EFS in the ERO reports contributing to student achievement in schools known to have a strong EE/EFS programme.
5.2 Research question
The research question that guided research on this indicator was:

What do ERO school reports mention about EE/EFS activities in schools, and is this a valid indication of the level of EE/EFS activity?

5.3 Research method and sample
Data for this indicator was retrieved from a number of sources. Firstly, a full list of schools for which ERO published review reports in 2006 was accessed through the ERO website (Education Review Office, 2007). A total of 992 schools had ERO reports published in 2006. These reports were searched using the ERO search tools for the words ‘sustainability’ and ‘environmental education’.

School reports in which these words appeared were analysed for reporting about EE/EFS activity in the school. Analysis focused on which part of the report the EE/EFS activity was mentioned, what was the level of mention according to applied criteria, and what EE/EFS activity was reported on.

This information was triangulated against an analysis of ERO reports for schools known to be involved in the Enviroschools programme using a database provided by the Enviroschools Foundation, and an analysis of ERO reports for schools known to have been provided with EFS support by the School Support advisors, using information provided from a survey completed by 83% of these advisors. In each of these schools being supported in EE/EFS, it can be assumed there is a strong commitment to EE/EFS.

5.4 Limitations
This research was limited to the availability of ERO reports on the ERO website. The data collected was therefore dependent on the accuracy and fullness of the information provided on that website. The use of the words ‘sustainability’ and ‘environmental education’ to find ERO reports that mention EE/EFS activity in schools may have failed to uncover some schools in which EE/EFS activity is occurring, but a search using the word stem ‘Enviro’ failed to find any further schools in which accepted ideas of EE/EFS were mentioned.
This research is also limited by the premise that some schools may not have highlighted their EE/EFS activity for ERO to report on, as they felt there were other priorities they wanted ERO to review. In these cases it can be surmised that failure of EE/EFS activity to appear in a school’s ERO report was due to ERO’s choice not to focus on EE/EFS in their review.

5.5 Findings
As noted above, a total of 992 schools had ERO reports published in 2006. These reports were analysed for the number of schools in which EE/EFS activity was reported, where in the report any mention was made of EE/EFS activity, what level of mention was made, and what aspects of EE/EFS were reported on.

Number of school reports mentioning EE/EFS activity
Table 5.1 shows the number of schools for which some mention was found of EE/EFS activity in the school’s 2006 ERO report.

Table 5.1 The number of schools for which some mention was found of EE/EFS activity in the school’s ERO report in 2006

<table>
<thead>
<tr>
<th>Number of schools</th>
<th>% of schools visited by ERO in 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total schools reported on by ERO in 2006</td>
<td>992</td>
</tr>
<tr>
<td>Number of schools whose ERO report mentioned EE/EFS activity</td>
<td>34</td>
</tr>
</tbody>
</table>

As can be seen in Table 5.1, the percentage of schools for which ERO reported EE/EFS activity in 2006 was very low. The implications of this finding are that either very few schools are undertaking EE/EFS, or ERO reports are under-reporting EE/EFS activity, due to schools not highlighting it, or ERO not focussing on it.

To help examine the first implication, this finding was triangulated against schools with 2006 ERO reports known to be in the Enviroschools programme and/or supported by EFS advisors. This data is shown in table 5.2.
Table 5.2 Triangulation of ERO reports found containing mention of EE/EFS activity against schools being supported in EE/EFS in 2006

<table>
<thead>
<tr>
<th>Number of schools whose ERO report mentioned EE/EFS activity</th>
<th>Number of enviroschools reported on by ERO in 2006</th>
<th>Number of enviroschools whose ERO report mentioned EE/EFS activity</th>
<th>Number of EFS-advised schools reported on by ERO in 2006</th>
<th>Number of EFS-advised schools whose ERO report mentioned EE/EFS activity</th>
<th>Number of schools whose ERO report mentioned EE/EFS activity that were not enviroschools or EFS-advised schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of schools reported on by ERO in 2006</td>
<td>992</td>
<td>122</td>
<td>122</td>
<td>122</td>
<td>122</td>
</tr>
<tr>
<td>% of schools visited by ERO in 2006</td>
<td>100</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: A number of the enviroschools were also EFS-advised.

Table 5.2 shows a minimum of 166 schools were reported on by ERO in 2006 which received EE/EFS support either through the Enviroschools programme, or through EFS advisors. As such, it can be assumed that almost 17% of schools ERO reported on were engaged in some form of EE/EFS activity.

This is far higher than the 3.4% reported by ERO. Therefore it can be inferred that ERO is under-reporting on EE/EFS activity in schools. Whether this under-reporting is due to schools choosing not to highlight their EE/EFS activity or ERO choosing not to focus on it, is uncertain from this data.

One means of investigating the under-reporting is to look at how the Enviroschool Award Scheme may be having an effect on ERO reporting. As Table 5.3 shows, only one third of schools with a Bronze Award, which requires adherence to a whole school approach in two of four areas of school life, had their EE/EFS activity recognised in their ERO report.
In contrast, more than half of Silver Award schools, which require adherence to a whole school approach in three of four areas of school life, and the sole Green-Gold school, which requires adherence to a whole school approach in all four areas of school life, had their EE/EFS activity recognised in their ERO report.

Table 5.3 Correlation between an award-winning enviroschool and mention of EE/EFS activity in their 2006 ERO report

<table>
<thead>
<tr>
<th>Number of award-winning enviroschools whose ERO report mentioned EE/EFS activity</th>
<th>Bronze</th>
<th>Silver</th>
<th>Green-Gold</th>
<th>Total Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>11</td>
<td>1</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Number of award-winning enviroschools whose ERO report did not mention EE/EFS activity</td>
<td>29</td>
<td>10</td>
<td>0</td>
<td>39</td>
</tr>
</tbody>
</table>

This table indicates that increasing engagement in a whole school approach to EE/EFS is more likely to lead to that activity being mentioned by ERO. As schools gain a Silver Enviroschools Award, they seem more likely to see EE/EFS as a priority worthy of ERO reporting on. Whilst this data cannot indicate whether the mention of EE/EFS was at the behest of the school or ERO, it nevertheless shows that once EE/EFS reaches a certain level of activity in a school, it gains more official recognition.

No significant differences were found in the likelihood of EE/EFS activity being mentioned in 2006 ERO reports according to the school type.

Where EE/EFS activity was mentioned in school reports
ERO reports in 2006 contained several sections, of which three are focused on key school outcomes. Section 2 provides an evaluation of the report findings (this is the section made readily available to the school community), Section 3 focuses on the school-specific priorities each school wishes to be reviewed, and Section 4 focuses on the areas of national interest as prescribed by the government.
Where EE/EFS activity was mentioned in an ERO report, it was reported primarily (28 reports) in Section 2. Fewer reports (19 reports) noted EE/EFS activity in Section 3. As this is the section schools generally nominate as areas they wish to highlight, this figure gives some indication of the number of schools in which the impetus for examining EE/EFS came from the school and not ERO.

By inference then, the other 15 schools whose reports mentioned EE/EFS chose not to highlight their EE/EFS as a priority area, but ERO chose to mention it as a feature of the school. In only one case did EE/EFS activity get mentioned in Section 4 regarding areas of national interest, and this was in relation to Māori achievement. Apparently delivery of EE/EFS was not regarded by ERO as an area of national interest in 2006. Table 5.4 shows where EE/EFS activity was mentioned in 2006 ERO reports.

Table 5.4 Sections in which EE/EFS activity was mentioned in 2006 ERO reports

<table>
<thead>
<tr>
<th>Section 2: ERO evaluation</th>
<th>Number of 2006 reports containing mention of EE/EFS (n=34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 3: School Specific Priorities</td>
<td>19</td>
</tr>
<tr>
<td>Section 4: Areas of national interest</td>
<td>1</td>
</tr>
</tbody>
</table>

No significant differences were found in the location of the mention of EE/EFS in the ERO with respect to the level of Enviroschools Award the school had won.

**Level of mention of EE/EFS in 2006 ERO reports**

Further analysis of those 2006 ERO reports that mentioned EE/EFS revealed significant differences in the level of mention of that activity. To categorise the level of mention, a scale was used to represent the following levels of reporting:

- **High** - EE/EFS features significantly in the school report. The ERO team and Board of Trustees have considered EE/EFS to be a priority for reporting. A number of paragraphs in the report detail EE/EFS activity in the school;
- **Medium** - 1-2 paragraphs in the report detail EE/EFS activity in the school;
- **Low** - 1-2 sentences in the report detail EE/EFS activity in the school.
The outcome of this analysis can be seen in Table 5.5

Table 5.5 Level of mention of EE/EFS activity in 2006 ERO reports

<table>
<thead>
<tr>
<th>Level of mention of EE/EFS activity</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>12</td>
<td>20</td>
<td>958</td>
<td>992</td>
</tr>
</tbody>
</table>

The table shows only two out of 992 schools had significant mention of EE/EFS activity, and 20/34 (59%) of schools who did have some mention of EE/EFS activity in their 2006 ERO reports had only one or two sentences dedicated to it. Not surprisingly, it was schools with the highest Enviroschools awards which also got the most mention of EE/EFS activity in their reports.

**Type of information about EE/EFS reported on**

The aspects of EE/EFS activity reported on in the ERO reports were also examined. These aspects were coded into a number of themes and counts of EE/EFS activity were made under these themes. The findings for themes mentioned more than twice are shown in Table 5.6.

Table 5.6 Type of information about EE/EFS in 2006 ERO reports

<table>
<thead>
<tr>
<th>Type of information reported by ERO in 2006</th>
<th>Number of ERO reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student participation</td>
<td>13</td>
</tr>
<tr>
<td>The school is implementing an EE/EFS programme</td>
<td>10</td>
</tr>
<tr>
<td>The school is involved in the Enviroschools programme</td>
<td>9</td>
</tr>
<tr>
<td>The school has received an award</td>
<td>9</td>
</tr>
<tr>
<td>The school is integrating EE/EFS into curriculum</td>
<td>9</td>
</tr>
<tr>
<td>Action projects (General)</td>
<td>8</td>
</tr>
<tr>
<td>The students have been involved in community action</td>
<td>8</td>
</tr>
<tr>
<td>Use of local environment for learning (LEOTC)</td>
<td>6</td>
</tr>
<tr>
<td>Relationships are established through community partnerships</td>
<td>5</td>
</tr>
<tr>
<td>Improved physical surroundings</td>
<td>4</td>
</tr>
</tbody>
</table>
The table shows the main aspects of EE/EFS activity ERO chose to highlight were school-based features such as implementing an EE/EFS programme or involvement in the Enviroschools programme, but also pedagogical outcomes such as student participation and action-taking.

5.6 Implications and recommendations

This examination of the 2006 ERO reports has shown a very low level of reporting of EE/EFS activity. Compared to the number of schools known to have some involvement in EE/EFS, this level of reporting represents approximately 20% of schools involved.

As what ERO reports on is a combination of what the government prescribes and what the school wishes to be reviewed, it is difficult to be certain as to the reasons for this under-reporting. However, the data indicates ERO is likely to be choosing not to focus on EE/EFS in a significant number of schools. It is possible then that this approach is a reflection of the government’s interest in EE/EFS.

This lack of interest is then communicated back to schools and their communities, who are guided by the outcomes of their school’s ERO report. In only a small number of cases would schools and their communities have therefore felt supported and encouraged in their EE/EFS work by their ERO report.

It appears involvement in structured EE/EFS programmes such as Enviroschools is more likely to result in ERO taking notice of EE/EFS activity. As these programmes grow, it is possible that increased mention of EE/EFS activity may be seen in ERO reports. The data does indicate increasing engagement in a whole school approach to EE/EFS, as indicated by the Enviroschools Awards, leads to greater likelihood of ERO recognition of this work.

It is also possible Education Review Officers may need training to interpret the progress and the significance of EE/EFS activity in New Zealand schools. As many of these officers are trained teachers who may have had little contact with school-based EE/EFS, some form of training in EE/EFS may enhance their ability to accurately review what they see in schools and provide useful feedback.
Therefore this report recommends:

- the Ministry of Education be encouraged to designate EE/EFS as an area of national interest for ERO reporting to improve the visibility of the EE/EFS that is happening;
- education review officers be offered training in EE/EFS to assist in their reviews of EE/EFS activity in schools.
6.0 School - Community interactions

6.1 Rationale for indicator

The development of strong links between a school and a community is thought to be an important component of an EE/EFS programme. *Agenda 21* called for engagement of schoolchildren in local and regional issues, supported by relevant expertise from government and non-governmental organizations. (UNCED, 1992)

The document also emphasized the importance of education involving the whole community. Uzzell (Uzzell, 1999) makes this latter point strongly for EE/EFS, arguing that there should be free-flowing interactions between a school and its community, such that students are active in their local community and community members are active in the school.

Uzzell further argues that for students to develop action competence (Jensen & Schnack, 1997) they need partnerships both within and outside their school.

New Zealand research and practice has also made it clear that school-community interactions are important for EE/EFS. The *Guidelines for environmental education in New Zealand schools* (Ministry of Education, 1999) encourage schools to develop links with regional and local councils and community agencies, citing the value of their expertise and the development of community-wide partnerships.

Established EE/EFS programmes such as Enviroschools also emphasise the development of school – community interactions through involvement of parents and community groups in the school's EE/EFS programme. (Enviroschools, 2007)

An evaluation of the current practices of EE in New Zealand schools in 2002-3 revealed a range of relationships between schools and environmental agencies. (Cowie et al., 2004) The evaluation also made it clear that teachers would like to develop more relationships, but were hindered by lack of time, difficulties with timetabling and knowing who to contact in the agencies.

While this evidence suggests school-community interactions are a good thing, there is a lack of research evidence available to understand what benefits, if any, are accrued. This study then sought to provide some baseline information on the prevalence and types of interactions that were occurring between schools and their communities.
6.2 Research question

The research question that guided research on this indicator was:

What are the level and types of community interactions involving students in EE/EFS activities in schools?

Note that this indicator focused on interactions involving school students (and most likely their teachers) to distinguish it from the examination of teacher professional development reported in Section 1.

6.3 Research method and sample

To address the possible diversity of school-community interactions in EE/EFS, a multi-pronged approach was taken to address this question. A previous study had indicated that regional and local councils were involved in school-based EE/EFS (Cowie et al., 2004), and it was also known that other agencies such as the Department of Conservation, Learning Experiences Outside the Classroom (LEOTC) programmes and environmental groups interacted with schools.

Each of these groups was surveyed by means of an emailed questionnaire sent out in May 2006 as described in Section 1 of this report. The sampling procedures and response rates for each of the groups asked questions about school-community interactions are below:

Local government: An email list of people thought to have a role in providing EE/EFS within city, district and regional councils was assembled. An initial list was identified through the Enviroschools Foundation, Environment Waikato, and a Google search on district and city councils. This list was cross-checked by telephone calls to each council, asking for the email details of a staff member with responsibility for EE/EFS. Selected council staff were then sent an email inviting them to participate in the research, with a questionnaire that could be completed and returned electronically. A total of 37 councils were selected to participate according to identification of a person with responsibility for EE/EFS in their organisation. Response rate: 20 councils replied, including nine regional, six district and five city councils. This represents 54% of the selected sample.
Central government: The Department of Conservation (DOC) was identified as the only central government department with a clear role in interacting with school students in EE/EFS. Direct contact was made with the national education officer inviting her to participate in the research. A questionnaire was subsequently emailed. Response rate: One reply. This represents 100% of the selected sample.

LEOTC: A list of LEOTC providers was generated through the Ministry of Education website. An email questionnaire was sent to the educator of the nine LEOTC providers identified as being most likely to have provided EE/EFS to schools. A questionnaire was also sent to the Karori Wildlife Sanctuary. Response rate: Five replies. This represents 50% of the selected sample.

Non-government organisations: NGOs were contacted through the Environment Centre networks. An Environment Centre network list was provided by the Hamilton Environment Centre. An email with the questionnaire was then sent to each Environment Centre, with a request that it be sent on to their networks. Direct contact was also made with any organisations suggested by the Environment Centre network. Using this sampling method meant it was impossible to determine how many questionnaires were received by NGOs. There were nine replies received.

EE/EFS advisors: An email with a questionnaire was sent to the national coordinator of the EFS advisory team, asking him to pass it on to the team members of 2006. The survey was sent to 12 advisors. Response rate: Ten replies. This represents 83% of the sample.

New Zealand school: As a cross-check, or triangulation, of the data collected from the agencies that claimed interactions with schools in EE/EFS in 2006, a concomitant survey was carried out of a random sample of New Zealand schools. Schools were identified from the Ministry of Education database available at their website (http://www.minedu.govt.nz). A total of 2,589 schools were listed in New Zealand in May 2006. A random selection of 400 schools was made by identifying every 7th school on the list. Teen Parent Units were not included. In the instance of the identified school being of this type, the next school on the list was selected. This sample represented 15% of the total number of schools in New Zealand.
Surveys were sent by mail to the principals of the 400 schools. A letter outlining the purpose of the survey was included with the survey. Surveys were returned to the researchers using a self-addressed return envelope.

Response rate: 152 out of 400 schools replied. This represents 38% of the selected sample, and 6% of the total school population.

Information was collected from the schools on school type, decile rating, school size and institution authority. This data indicated that the response profile is in close approximation to the total number of schools of each school type, school size and institution authority in New Zealand, so can be seen as a representative sample.

The response profile on decile ratings shows a slight under-representation of schools in the decile 1-3 group and a slight over-representation in the Deciles 4-8 and 9-10 groups, compared to the total number of schools of each type in New Zealand, so can be seen as a reasonably representative sample.

6.4 Limitations

This research was limited to the interactions with schools involving students in EE/EFS in local and central government, LEOTC providers and NGOs. Information gathered relied upon existing databases or networks of people or organisations believed to possibly be interacting with schools in EE/EFS.

Due to the lack of any comprehensive database of EE/EFS providers in New Zealand, it is likely the population sampled does not represent a thorough examination of all possible providers, and so the results must be considered in that way.

Equally, it is uncertain as to whether each organisation has been able to provide, through the means of a questionnaire, a comprehensive picture of the interactions with schools in EE/EFS that they had in 2006, so results must again be treated with caution.

The information gained from the schools is also limited by the small sample size, with 6% of the population being represented in the results. The principal was chosen as the target for the survey, and the quality of the information provided has been reliant on the accuracy of the knowledge of the person completing the questionnaire. The use of a brief survey has also limited the depth of data capture to a broad overview.

The following data then does not represent the total amount of school-community interactions in New Zealand schools, but that which has been reported from a sample
of organizations that interact with schools and the schools themselves. As it is uncertain whether the data is truly representative of the population, the data resists extrapolation to gain nationwide figures. It may be used to give an indication of trends and as a baseline for future comparisons employing a similar sampling procedure.

6.5 Findings

The findings for this indicator are presented firstly from those groups reporting interactions with schools involving students in EE/EFS in 2006. Table 6.1 shows the total amount of each type of interaction reported by all respondents.

Table 6.1 Total interactions involving school students in 2006 reported by all responding environmental agencies

<table>
<thead>
<tr>
<th>Interactions involving school students</th>
<th>Number of schools</th>
<th>Approx numbers of school students attending in 2006, if known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributed to EE/EFS practical activity at school</td>
<td>548</td>
<td>11,000</td>
</tr>
<tr>
<td>Contributed to EE/EFS field trip away from school</td>
<td>861</td>
<td>47,956</td>
</tr>
<tr>
<td>Contributed in EE/EFS to school camp</td>
<td>135</td>
<td>6,799</td>
</tr>
<tr>
<td>Guest speaker on EE/EFS to one class</td>
<td>293</td>
<td>2,542</td>
</tr>
<tr>
<td>Guest speaker on EE/EFS to more than one class</td>
<td>285</td>
<td>11,940</td>
</tr>
<tr>
<td>Hosted schools at your own EE/EFS events</td>
<td>327</td>
<td>6,082</td>
</tr>
<tr>
<td>Provided EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td>351</td>
<td></td>
</tr>
<tr>
<td>Provided EE/EFS resource material (e.g. test kits, booklets, CDs etc) for schools</td>
<td>1,185</td>
<td></td>
</tr>
<tr>
<td>Worked with school envirogroups</td>
<td>70</td>
<td>652</td>
</tr>
</tbody>
</table>
The table shows the environmental agencies reported a variety of types of interactions with school students in 2006. As with the data reported for teacher professional development in Section 1, the most common interaction reported was provision of resource material. There were also substantial interactions involving students in practical activities at their schools and on field trips away from their schools. This latter activity reportedly involved a substantial number of students, contributing significantly to education in the environment.

Further analysis showed that all groups were contributing to provision of resource material. Regional and city councils and LEOTC programmes were the main providers of interactions with students on field trips away from schools. Regional councils were providing almost all interactions to do with EE/EFS practical activity at school. LEOTC programmes provided almost all student interactions in EESF on camps. Finally, guest speaking in classrooms and hosting EE/EFS events were a part of interactions from all respondent groups.

Respondents were asked which were the most common topics/activities for the interactions that their organization had with schools involving school students in 2006. The findings are shown in Table 6.2.

Table 6.2 Most common topics for school/community interactions in 2006

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste</td>
<td>15</td>
</tr>
<tr>
<td>Water</td>
<td>13</td>
</tr>
<tr>
<td>Enviroschools</td>
<td>11</td>
</tr>
<tr>
<td>EE/EFS</td>
<td>9</td>
</tr>
<tr>
<td>Envirogroup</td>
<td>6</td>
</tr>
<tr>
<td>Planting and gardens</td>
<td>6</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>5</td>
</tr>
<tr>
<td>Energy</td>
<td>2</td>
</tr>
<tr>
<td>Coastal</td>
<td>1</td>
</tr>
<tr>
<td>Urban development</td>
<td>1</td>
</tr>
<tr>
<td>Ecotourism</td>
<td>1</td>
</tr>
<tr>
<td>Sustainable schools</td>
<td>1</td>
</tr>
<tr>
<td>Transport</td>
<td>1</td>
</tr>
</tbody>
</table>
This table clearly shows a distinction between a content and process focus. The content topics of waste and water were the most popular, with some schools also opting for planting and gardening and biodiversity, with a range of other topics provided. The process topics revolved around EnviroSchools and general EE/EFS. This topic spread is similar to the one found for agencies offering teacher professional development as shown in Section 1.

As noted earlier, an attempt to check or triangulate this data on EE/EFS interactions with schools was made using a survey of a sample of schools, asking them to report what community agency interactions their students engaged in, and with which agencies, in EE/EFS in 2006.

The data provided by the agencies and the schools resist direct correlation as there can be no certainty that the responses obtained are representative, and the sample sizes and the response rates were different in each survey group. However, knowing that the school sample was generated randomly and the responses were generally representative of the school population according to several criteria (see above), some analysis of the spread of the data across the different interactions is indicative. The data obtained from schools is shown in Table 6.3.
Table 6.3 Number of schools having interactions with community members involving school students in EE/EFS in 2006

<table>
<thead>
<tr>
<th>Interaction with your school involving students (EE/EFS refers to an interaction that had an environmental or sustainability theme)</th>
<th>Parents</th>
<th>Local council staff</th>
<th>Department of Conservation</th>
<th>Community environmental group</th>
<th>School advisor</th>
<th>Local iwi</th>
<th>Research organisation</th>
<th>Private company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributed to an EE/EFS field trip</td>
<td>64</td>
<td>36</td>
<td>34</td>
<td>28</td>
<td>18</td>
<td>7</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>Contributed in EE/EFS to your school camp</td>
<td>47</td>
<td>4</td>
<td>19</td>
<td>11</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Guest speaker on EE/EFS to one class</td>
<td>9</td>
<td>21</td>
<td>18</td>
<td>20</td>
<td>14</td>
<td>4</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Guest speaker on EE/EFS to more than one class</td>
<td>7</td>
<td>14</td>
<td>18</td>
<td>13</td>
<td>20</td>
<td>3</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Assisted with EE/EFS activity at school e.g. planting, gardening</td>
<td>59</td>
<td>24</td>
<td>14</td>
<td>25</td>
<td>17</td>
<td>9</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Assisted with EE/EFS activity outside school e.g. planting, gardening</td>
<td>29</td>
<td>20</td>
<td>18</td>
<td>23</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Received EE/EFS facilitation through advisors (e.g. Enviroschools, School Support Services)</td>
<td>7</td>
<td>12</td>
<td>4</td>
<td>3</td>
<td>34</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Received EE/EFS resource material (e.g. test kits, booklets, CDs etc) for schools</td>
<td>7</td>
<td>18</td>
<td>11</td>
<td>8</td>
<td>15</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

This table indicates schools interacted with a wide range of community members in providing EE/EFS for their students in 2006. The data shows parents were involved in field trips and camps, as could be expected, but also were significantly involved in other EE/EFS activities, both within and outside the school.

Staff from local councils and the Department of Conservation along with members of community groups were involved in field trips and camps and assisted in practical activities, but were also prominent as guest speakers in the schools. School advisors,
such as those in the Enviroschools programme and School Support Services, appear to be playing a key role in helping to provide EE/EFS to students in schools.

This data combined with that shown in Table 6.1 indicates that there was a significant level of interaction between schools and community members in EE/EFS in 2006. When schools were asked what topics were the focus of their EE/EFS interactions with community members, the data provided bore similarities with that provided by the community agencies.

Table 6.4 Most common topics for school/community interactions in 2006 reported by schools

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planting and gardens</td>
<td>42</td>
</tr>
<tr>
<td>Waste</td>
<td>37</td>
</tr>
<tr>
<td>Conservation/community project</td>
<td>30</td>
</tr>
<tr>
<td>Water</td>
<td>19</td>
</tr>
<tr>
<td>Beaches and coasts</td>
<td>11</td>
</tr>
<tr>
<td>EE/EFS</td>
<td>10</td>
</tr>
<tr>
<td>Enviroschools</td>
<td>6</td>
</tr>
<tr>
<td>History of the local area</td>
<td>3</td>
</tr>
<tr>
<td>Envirogroup</td>
<td>2</td>
</tr>
</tbody>
</table>

As can be seen in the table, the same types of activities as reported by the community agencies were reported by schools. The school data indicates a greater involvement in planting and gardening, but this may reflect the school’s reporting of parental involvement – this was not surveyed of the parents themselves.

The same key content topics emerged, being waste and water, and there were some interactions around EE/EFS ideas and the Enviroschools programme. A number of schools claimed involvement with the community in unspecified conservation or community projects.

6.6 Implications and recommendations

This examination of school – community interactions in EE/EFS in 2006 has revealed that much interaction is occurring with a wide range of community members. Major interactions with schools appear to be with parents, regional councils, NGOs and EFS
school advisors. These groups appear to be assisting EE/EFS both within the school and away from the school.

Whilst there are limitations on the accuracy of the data using a questionnaire collection method, as the questions are prone to interpretation by the respondent and these interpretations cannot be clarified, there is some correlation between the agency reported data and the school reported data, particularly in terms of topics.

The survey data indicates that interactions are potentially fulfilling both of the suggested roles for school-community interactions, being the provision of expertise by the community group, and the benefits of a school being involved with its local community. As noted earlier, previous research has indicated that teachers face difficulties in developing and maintaining relationships with community agencies to facilitate interactions. (Cowie et al., 2004)

Whilst it was beyond the scope of this study to examine the student learning benefits of these interactions, the potential for benefit is clear. Further research into this area would be useful.

Therefore this report recommends:

- parents and environmental community groups interact with schools in EE/EFS;
- schools and their teachers interact with their local communities in EE/EFS to access expertise and engage in local environmental issues;
- up-to-date resources be made available that facilitate contact between schools and community agencies. These resources should allow each party to readily identify the correct person to contact in each agency or school;
- research is conducted that explores the benefits to environmental community groups from school-community interactions;
- research be conducted that explores the benefits to the environment from school-community interactions.
7.0 Research and evaluation of EE/EFS in New Zealand

7.1 Rationale for indicator
Progress in a field of endeavour requires critical thinking and reflection to elicit information about what is being done well and what could be improved upon. Research and evaluation using well-informed and rigorous data gathering and analysis provides one form of this thinking and reflection.

As EE/EFS is a relatively new endeavour in most schools, research and evaluation can help to provide a level of critique to enhance understanding about practice. Therefore it is to be encouraged, and can also be an indicator of critical input into EE/EFS development. This report, then, examines research and evaluation of EE/EFS in New Zealand in recent years.

7.2 Introduction
The amount of published research about EE/EFS in New Zealand has been growing steadily over the last few years, due to an increase in the number of people undertaking Masters and Doctorate theses, and the development of other collaborative research initiatives related to EE/EFS.

New Zealand’s published research and evaluation in EE/EFS falls into two main categories (with some overlap) research linked to EE/EFS in the:
• ‘formal education’ sector (early childhood education, school, and tertiary education including teacher education); and
• community and local/regional government sectors.

Studies and theses in each of these categories published between 1992-2007\textsuperscript{14} are identified below.

\textsuperscript{14} This review only considers research carried out during the last fifteen years.
7.3 Research question

The research question that guided research on this indicator was:

What research and evaluation in EE/EFS has been undertaken and published in some form since 1992?

The study was restricted to work that had been formally published, as this was accessible to the researchers. The study focused on work since 1992, as this represented recent contributions, since the Earth Summit.

7.4 Research method

The search for research and evaluation studies that primarily focussed on EE/EFS in New Zealand schools relied on a number of strategies. A starting point was previous literature reviews completed by Bolstad, Baker, with Barker and Keown (2004) and the PCE (2004), along with published journal articles concerning the topic.

A ‘snowball’ technique was used to search for other relevant publications from the reference lists in these articles and reports. These approaches also uncovered studies in New Zealand linked to the community and local/regional government sector so these have been included in this chapter. A full search of library databases such as ERIC was also undertaken. Finally, the search was augmented by enquiries through listserves, and other networks within the EE/EFS community.

All publications were collected, where possible, and at a minimum were analysed at the level of abstract or executive summary for information on the coverage of the publication. The publications were then categorised according to themes, for description below.

7.5 Limitations

This study is limited to those publications found through the search techniques described above. It is quite possible the list herein is not exhaustive, as locating every publication in any field these days is highly challenging.

This is made even more difficult by the relative youth of EE/EFS in New Zealand, meaning there is little in the way of an established publication tradition and a lack of avenues for publication of research and evaluation studies in this area. There also
exists to the best of our knowledge no central repository of such studies, many of
which have been undertaken as commissioned reports or thesis work for degrees.
This material is not readily accessible to the general public. We hope we do not offend
anyone whose work may not appear in this chapter when it should.

7.6 Findings

7.6.1 Research linked to the formal education sector
A number of Masters theses (particularly in the 1990s) provided arguments for the
need for environmental education, critiques of the existing governmental
support/resourcing for EE/EFS, or analyses of the ways in which EE was conceived
by various people and groups across sectors (including people and groups outside
the formal education sector). (Grant, 1994; Henson, 1998; Hodgetts, 2000; Hooker,
1997; Rawlings, 1992)

Over time, EE/EFS research has moved beyond the argument that EE/EFS should
occur in schools, to actually investigating the practices, issues, and challenges for
integration of EE/EFS into school practice. This research has included:
• investigations of teachers' attitudes and perceptions about EE/EFS, and the
  challenges and barriers associated with implementing EE/EFS into school
  practice (Brown, 2003; Hargreaves, 1996; Iles, 2004);
• investigations of students' perspectives on the environment (Leith, 1996);
• environmental issues (King, 2005);
• conceptions of sustainability (Birdsall, 2005);
• explorations and critical appraisals of the nature and breadth of EE/EFS practice
  within or across schools (Chapman, 1998; Chidlow, 1997; McKenzie, 2006;
  McLean, 2002);
• research on particular school EE/EFS initiatives (Bravo, 2001; Irvine, 2005;
  Wilson-Hill, 2003); and
• the theorising and development of pedagogical approaches for teaching, learning,
  and teacher education in EE/EFS. (Chapman, 2004; Law, 2003; McConnell, 1998)

Several other projects have added to the growing research base regarding EE/EFS in
New Zealand schools. In 2002 the Ministry of Education commissioned research to
evaluate the status of EE in New Zealand schools. (Bolstad et al., 2004)
The evaluation included a review of New Zealand and international literature, a survey of 367 teachers at 193 New Zealand schools who were involved in environmental education in some way, and case studies in eight different schools and kura.

In 2005, the Teaching and Learning Research Initiative (TLRI) funded an action-research project to research and develop pedagogical approaches in environmental education that promote the development of students’ “action competence” (Eames et al., 2006). A second TLRI-funded project is currently underway in 2007, this time with a focus on investigating the relationship between whole school approaches to education for sustainability and student learning. (Eames, in progress)

A few graduate and post-graduate studies have focused on specialised facets of EE/EFS, including:

- teaching environmental concepts to children with a visual impairment (Budd, 1998);
- “narrative function” in experiential education (Hegglun, 2002);
- exploring the link between environmental education and environmental citizenship. (Sanders, 1999)

Finally, research is beginning to emerge regarding EE/EFS in the tertiary education sector. (Cutler-Welsh, 2004; Douglas, 2002; Dowsett, 2001)

7.6.2 Research linked to community and local/regional government sectors

A great deal of New Zealand’s EE/EFS activity stems from the local/regional government and community sectors.

It is not surprising, then, that there is a significant amount of research and evaluation related to this. This includes evaluations of the effectiveness or impacts of government departments, local/regional council or community-based education for sustainability programmes and initiatives (Chard, 2004; Seitzer, 2004; Sprosen, 2003; Taylor & Allen, 2007; van Rossem, 1995; Vowless, 2002), some of which directly involve schools and schoolchildren. (Pates & Hutchinson-Daniel, 2005; Taylor, 2005)

Other studies have focussed on environmental education centres (Ho, 2001; Schanzel, 2001), waste behaviour (Goddard, 2004), learning about the environment
through natural history television (Hunt, 1993), and cross-cultural environmental knowledge sharing. (Edmeades, 2002)

We are aware of other evaluations of programmes, such as Waterwatch at Lincoln University and various Department of Conservation initiatives for example, that have been done in-house and not published and therefore are not readily available to the EE/EFS community.

7.7 Implications and Recommendations
A number of trends are visible in New Zealand EE/EFS research today. One of these is a trend towards increased depth and connectivity of research about EE/EFS teaching and learning in New Zealand schools. For example, a 2004 review of New Zealand research literature on EE/EFS identified “a lack of comprehensive research on the processes or outcomes of regular school-based environmental education practice(s) for students within New Zealand schools.” (Bolstad et al., 2004, p. 40)

In the years since, new projects have been undertaken (or are being developed) to address questions related to this area. These include exploring the nature of teaching approaches that support the development of students’ “action competence”15 (Eames et al., 2006), and looking at the impacts of whole-school EFS approaches for student learning (Eames, in progress) and for community change. (Ritchie, 2007)

Some of these projects are engaging teachers and researchers in research partnerships that promote co-construction of understanding of EFS practice, and the development of further research capacity amongst EFS practitioners. This has the potential to expand research output in the future.

An increasing number of research qualified practitioners in EE/EFS in recent years holds potential to greatly increase the volume of published research and evaluation studies relating to EE/EFS in New Zealand schools.

Further encouragement of these practitioners to continue to research and evaluate, and encouragement of more practitioners to gain research experience through

participation in research programmes, is imperative for enhancement of our knowledge and understanding of EE/EFS in our schools.

Furthermore, it is important the findings of these research and evaluation works are widely disseminated amongst the EE/EFS community in New Zealand, so we can all learn from them. Strategies for making publication accessible for a range of study types should be explored.

An ongoing area where there is little published research relates to Maori concepts of, and practices relating to, EE/EFS\(^\text{16}\). However, a new Ministry of Education initiative, Matauranga Taiao, may produce research and publications with a focus on these dimensions of EE/EFS.

Therefore this report recommends:

- encouragement is provided for New Zealand EE/EFS practitioners at all levels to engage in research and evaluation through participation in programmes such as degree qualifications or partnerships with experienced researchers;
- a range of dissemination opportunities be made available for the full range of research and evaluation studies on EE/EFS in New Zealand, from local practitioners accessing small-scale practitioner studies of their own programmes, through to large-scale research studies being made available to international audiences;
- a database of such research and evaluation studies regarding EE/EFS in New Zealand be established.

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\(^\text{16}\) While some activity may be occurring in this area, we could not locate any published research in this search of the literature.
8.0 Advocacy for the Decade of Education for Sustainable Development

8.1 Rationale for indicator

“In December 2002, the United Nations General Assembly (UNGA) adopted resolution 57/254 to put in place a United Nations Decade of Education for Sustainable Development (DESD), spanning from 2005 to 2014” (UNESCO, 2007). UNESCO was requested to lead the ‘decade’ and develop and foster the implementation of the resolution.

As this report aims to provide some baseline data about indicators of activity related to education for sustainable development (described in this report under the terms currently used in New Zealand education as environmental education/education for sustainability) at the beginning of this ‘decade’, this section provides some background to the ‘decade’ and documents what is currently happening in New Zealand.

8.2 Background to the Decade

UNESCO notes that the concept of sustainable development continues to evolve (UNESCO, 2007). Three key areas are seen to underpin sustainable development – society, environment and economy, with culture as an underlying dimension:

- Society - an understanding of social institutions and their role in change and development, as well as the democratic and participatory systems which give opportunity for the expression of opinion, the selection of governments, the forging of consensus and the resolution of differences;
- Environment - an awareness of the resources and fragility of the physical environment and the affects on it of human activity and decisions, with a commitment to factoring environmental concerns into social and economic policy development;
- Economy - a sensitivity to the limits and potential of economic growth and their impact on society and on the environment, with a commitment to assess personal and societal levels of consumption out of concern for the environment and for social justice (UNESCO, 2007).
UNESCO further notes: “ESD is fundamentally about values, with respect at the centre: respect for others, including those of present and future generations, for difference and diversity, for the environment, for the resources of the planet we inhabit”.

It is argued that education enables people to understand themselves, others and their links with the wider natural and social environment, and that this understanding serves as a durable basis for building respect.

UNESCO highlight the following characteristics of teaching and learning in ESD:
- Interdisciplinary and holistic - learning for sustainable development embedded in the whole curriculum, not as a separate subject;
- Values-driven - sharing the values and principles underpinning sustainable development;
- Critical thinking and problem solving - leading to confidence in addressing the dilemmas and challenges of sustainable development;
- Multi-method - word, art, drama, debate, experience, ... different pedagogies which model the processes;
- Participatory decision-making - learners participate in decisions on how they are to learn;
- Locally relevant - addressing local as well as global issues, and using the language(s) which learners most commonly use. (UNESCO, 2007)

UNESCO advocates ESD for everyone, within a perspective of lifelong learning, engaging all possible spaces of learning, formal, non-formal and informal, from early childhood to adult life. It is argued that:

ESD calls for a re-orientation of educational approaches – curriculum and content, pedagogy and examinations. Spaces for learning include non-formal learning, community-based organisations and local civil society, the workplace, formal education, technical and vocational training, teacher training, higher education educational inspectorates, policy-making bodies, ...and beyond (UNESCO, 2007).

UNESCO proposes seven interlinked strategies for the ‘decade’: advocacy and vision building; consultation and ownership; partnership and networks; capacity building and training; research and innovation; information and communication technologies;
monitoring and evaluation. Several of those related to school-based education have been reported on through indicators in this report.

UNESCO states the overall goal of the DESD “is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations.” (UNESCO, 2007)

Within this goal, UNESCO notes the following objectives for the DESD:

- facilitate networking, linkages, exchange and interaction among stakeholders in ESD;
- foster an increased quality of teaching and learning in education for sustainable development;
- help countries make progress towards and attain the millennium development goals through ESD efforts;
- provide countries with new opportunities to incorporate ESD into education reform efforts.

### 8.3 UNDESD in New Zealand

In response to the UN DESD the New Zealand National Commission for UNESCO set up a coordinating committee to pursue the goal and objectives for the Decade in New Zealand. This group of well-intentioned and able people has struggled to make much headway in the face of other commitments and a lack of funding. A National Stakeholders Forum was held in 2006 at which the basis of a strategic plan was drafted. Some broad goals of growing wisdom, making connections and taking actions were also agreed.

In an effort to make progress towards achieving the ‘decade’s goal, the national commission has just finalised a partnership agreement with Sustainable Aotearoa New Zealand (SANZ) which will see SANZ administer and coordinate the DESD in New Zealand.

SANZ is planning a further National Stakeholders Forum in November 2007 to: facilitate networking, linkages and interaction among stakeholders in ESD; finalise the strategic plan for the decade in New Zealand; and agree a draft set of indicators for
the decade in New Zealand. It is to be hoped that these indicators will be informed by the work of this report and encourage the advocacy for school based EE/EFS in New Zealand.

8.4 Implications and recommendations

The UN DESD has worthy goals and objectives. As the end of the third year of the DESD approaches, now is the time for action if any significant progress is going to be made towards those goals and objectives within the ‘decade’. Recent developments hold promise for this progress, but this promise must be realised. The ‘decade’ provides an opportunity with international support to foster EE/EFS in New Zealand schools.

Therefore this report recommends:

- the new partnership involving Sustainable Aotearoa New Zealand Inc. and the New Zealand National Commission for UNESCO be supported and that the strategic plan is finalised and implemented immediately;
- the good work being conducted in EE/EFS for our schools be supported and enhanced by advocacy at all levels;
- achievements in EE/EFS in and for our schools be recognised throughout the Decade, so that those who are working hard are encouraged in their efforts and recognised as making a valid contribution to the overall goals of sustainable development.
References


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