Towards an Ecologically Sustainable Catholic Primary School

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Statement of Sources

This thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma.

No person's work has been used without due acknowledgement in the main text of the thesis.

This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.

All research procedures reported in the thesis received the approval of the relevant Ethics Committee as required.

Signed   Patricia Hindmarsh

Date

Acknowledgements

ABSTRACT

The research intention is to identify the characteristics of an ecologically sustainable contemporary Catholic primary school and the conditions that support the development of such a school community.

The literature review showed there is a clear mandate from the Catholic Church to consider ecological conversion as integral to its evangelising mission, a mission that is at the heart of Catholic education, including the school. An extensive body of educational literature, including philosophy of education and curriculum frameworks, identified environmental awareness and responsibility as mandatory outcomes for all students. The literature study defined and described ecological conversion, sustainable education, environmental education and related conceptual understandings. The literature study also provided examples of strategies to guide the strategic implementation of these understandings within the total learning program of a school.

From examples found in the literature, a framework, *Steps in Becoming an Environmentally Active Catholic Primary School*, incorporating the specifically Catholic religious dimension, was developed by the researcher to provide benchmarks and indicators against which a school's progress in journeying towards ecological sustainability could be evaluated.

This qualitative, constructionist study incorporated some elements of Grounded Theory in gathering and analysing data from within two Australian Catholic primary case study schools recognised for their commitment and good practice in sustainable education.

From the analysis of the data gathered through interviews, focus groups and participant observation, the distinctive characteristics of the two schools were identified and their stage of development evaluated against the framework *Steps in Becoming an Environmentally Active Catholic Primary School*. In addition, the factors that had supported school development and the factors that were barriers to that development were named.

From the study, conclusions about the nature of an ecologically sustainable Catholic primary school were drawn and recommendations made about how best to support the development of such a school.

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Chapter 1.   THE RESEARCH DEFINED

An education in ecological responsibility is urgent: responsibility for oneself, for others and for the earth. This education cannot be rooted in mere sentiment or empty wishes. Its purpose cannot be ideological or political. It must not be based on rejection of the modern world or a vague desire to return to some 'paradise lost'. Instead, a true education in responsibility entails a genuine conversion in ways of thought and behavior. Churches and religious bodies, non-governmental and governmental organizations, indeed all members of society, have a precise role to play in such education

(John Paul 11, New Years Day Message, 1990, p.12).

1.1   Introduction to the Research

Catholic schools have not historically been leaders in developing ecological responsibility. Their educational agenda have always placed human development in all its facets- physical, intellectual, psychological and spiritual- at the centre of the curriculum. Development of strong human community and experience of lived Catholic Faith have been central aims for Catholic schooling. The "urgency" expressed by Pope John Paul II in the introductory quotation above has not become a mainstream commitment in Catholic school systems. However, it is imperative that Catholic schools no longer ignore or remain ignorant of this sense of urgency. Education of students towards ecological sustainability and responsible living as members of planet earth is crucial to the survival of humans and of the species that coexist with us. The very systems that support all life will depend on conscious, responsible ecological choices made by humans, and education is the key to human formation. Research is greatly needed to clarify how schools, and in particular

Catholic schools, which claim to educate holistically, can make appropriate, practical responses to the ecological crisis within and through the framework of their mainstream structures. Research is needed to examine why it is that Catholic schools have generally lagged behind their state counterparts in seriously and systematically addressing the ecological crisis as a central educational issue, and this in spite of a serious commitment by Catholic schools to social justice as mandated through Catholic Social teaching. There has been a failure at many points to see the links between ecological devastation and global poverty and inequity.

The aim of this piece of research can be couched as an overall research question, more fully expanded in the research intentions stated later in this chapter:

How can a contemporary Catholic primary school respond educationally to the call of Pope John Paul 11 (1990) for "ecological conversion", through the integration of Education for Sustainability, sometimes referred to as Environmental Education, within the school's total Catholic educational framework?

In his General Audience Address, John Paul (1991b) stated:

> It is necessary to stimulate and sustain the 'ecological conversion', which over these last decades has made humanity more sensitive when facing the challenge towards which it was moving (p. 4).

Pope John Paul II has also called the whole Church to educate towards ecological responsibility. In his *New Year's Day Message* (1990), he observed:

> A new ecological awareness is beginning to emerge which, rather than being downplayed, ought to be encouraged to develop into concrete programs and initiatives (p.2).

Literature to support the importance of including ecological education for sustainable human development within the curriculum of all schools includes the foundational document, written by Delors (1996a) *Learning: the Treasure Within*, presented in 1996 to UNESCO from the International Commission on Education for the Twenty-First Century. The document identified four areas of learning:

- learning to know

- learning to do

- learning to live together

- learning to be

In the introductory essay, "Education: the Necessary Utopia", Delors (1996b) asks the question: "How could the Commission not highlight the ways in which educational policies can help to create a better world, by contributing to sustainable human development?" (p.6).

The links between the four kinds of learning cited could be seen as a form of ecology, or web of inter-related factors, an ecology of learning. Education helps the individual to make connections, within the self, within society and within the planetary processes. Stephen Sterling (2001) claims that what is needed within educational contexts is an "ecological design" that can "help those working for change towards sustainability" (p.77). The key aims of education towards environmental responsibility include learning to *know about* the environment and ecological systems, to *do* what is necessary to support ecological sustainability, learning *to live together* with other humans and with nature in a way that is ecologically responsible, and finally, learning *to be* a responsible, global citizen.

The Australian inter-governmental body, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), after its historic 1999 meeting in Adelaide, set out major goals for Australian schools in *The Adelaide Declaration*. Goal 1.7 stated that:

> When students leave schools they should have an understanding of, and concern for,
> stewardship of the natural environment, and the knowledge and skills to contribute to
> ecologically sustainable development (p.3).

The New South Wales Department of Education and Training, in its policy document *Environmental Education Policy for Schools* (2001), states that "Environmental Education is our way to the future" (p.9). Further, it acknowledges that *Agenda 21*, the United Nations global initiative after The Earth Summit in 1992, provided the basis for its commitment to Environmental Education.

Mission statements of Catholic religious orders and Catholic agencies whose work is linked to education, increasingly include references to ecology. For example, the Vision and Mission Statement of the Institute of Sisters of Mercy in Australia, taken from the *National Chapter Acts* found on their website states: "We mourn the ravaging of the earth and the consequent poverty and dispossession of people. An active ministry to the earth is integral to our Mercy spirituality". The Catholic Education Commission of Western Australia (2002), the governing body for Catholic education in the state of Western Australia names "capturing the joy and mystery in the created universe" (p.8) as one of the five key aims of Catholic education in its vision statement, *Living the vision: and so our journey continues* (2002).

Such statements acknowledge that respect and love for the created world are central rather than peripheral to the mission of Catholic education, thus strengthening the mandate to include within their learning programs opportunities for students to develop attitudes and lifestyles that respect and love the earth's eco-systems and foster sustainable ways of living.

1.2   Personal Background

My interest in Environmental Education developed during several years spent coordinating the Mission and Justice Education Program in Sydney, an educational program sponsored by the Australian Catholic Bishops' Conference. One of the dimensions included within its educational mandate was adult education in ecological awareness.

For three years, I wrote a weekly column for *The Catholic Weekly*, the newspaper of the Catholic Archdiocese of Sydney. The column, entitled "Greening the Gospel", focused on environmental issues. I was a member of the Advisory Committee to the Australian Catholic Bishops' environmental organization, Catholic Earthcare Australia, initiated in 2001. The organization has a mandate to foster the "ecological conversion" articulated by Pope John Paul 11 (2001) through the work of the organization in education, research, advocacy and networking at Church and societal levels. The various leadership roles I have filled within Catholic schools have presented opportunities to experience curriculum implementation as a vehicle for human formation, both of staff and students. Human formation has always included the development of responsibility for one's relationship to society and to the earth.

1.3   Research Intentions

My research intentions are to:

1.   Establish an essential rationale for the development of the ecologically sustainable Catholic primary school.

2.   Discover and refine criteria and descriptors that could identify the characteristics of an ecologically sustainable Catholic primary school.

3.   Examine as case studies two schools, considered to be models, or partial models, of ecological sustainability, using criteria and descriptors developed as benchmarks.

4.   Identify key factors that supported the development of these schools towards ecological sustainability and key factors that were barriers to that development.

5.   Make recommendations about how the Catholic primary school can be supported towards becoming an ecologically sustainable school, drawing upon evidence and conclusions reached through the research process.

As stated above, despite a clear mandate from outside and within the Catholic Church, comprehensive Education for Sustainability is not a strong feature of Catholic primary schools in general. At the beginning of this research (2004) few websites of the Catholic Education Offices that administer schools in Australian showed evidence of the existence of Environmental Education policies, or incorporation of ecological concepts in their public statements.

Education for ecological responsibility is featured in the outcomes of social sciences, science and religious education curricula, all of which contain environmental perspectives. An example can be found in the Board of Studies New South Wales

curriculum *Human Society and its Environment* (1998), which includes as one of its student outcomes:

> Students can demonstrate an understanding of the interconnectedness between Australian and global environments and how groups and individuals can act in an ecologically responsible manner (p 114).

The *Essential Learnings Framework* (2003), as implemented through the Department of Education Tasmania includes the dimension "World Futures" as one of the essential learnings, and includes "Creating Sustainable Futures" and "Investigating the Natural and Constructed World" as key elements within World Futures. This is an example of a contemporary curriculum framework that has Education for Sustainability (EFS) at its heart. Its implementation has been controversial and it remains to be seen whether this document will be reflected in widespread sound environmental awareness and practice in Tasmanian schools.

Catholic primary schools utilize state curriculum documents in all states. However, there are few examples documented of Australian Catholic schools that model what is termed in the New South Wales Department of Education and Training Environmental Education Policy (2001) "an environmentally active school" (p. 1), or by Steven Sterling (2001) within the English Environmental Education context, as a "sustainable school" (p. 67).

Exploration of literature indicates that research related to Environmental Education undertaken in Australian schools is largely limited to non-Catholic school settings. In the past, where Environmental Education has been fostered, it has mainly been the

choice of individual Catholic school Principals and dedicated individual teachers. Catholic systems have generally not committed significant resources to this aspect of education. A study of the factors needed to improve this commitment is therefore timely and relevant.

1.4   Research Assumptions

While this study does not employ quantitative methodology in which assumptions are scientifically tested, a number of assumptions underpin the study and are explored and tested through the data-gathering process and the literature review. It is assumed that:

- Schools can be visible models of sound ecological practice.
- Catholic schools proclaim an ethos that is fully compatible with and supportive of Education for Sustainability.
- The curriculum can be structured to include a strong commitment to Education for Sustainability.

1.5   Definition of the Research Questions

Title

The title of the research "Towards an Ecologically Sustainable Catholic Primary School" has been deliberately designed to be open-ended. This area of research enters relatively new territory within Catholic education. Also, there can never be an existing example of a fully developed model of the ideal ecologically sustainable Catholic school. Schools are by nature evolving educational communities because staff, students, curriculum and context are constantly changing. A school can at best

be engaged in an evolving journey towards sound environmental awareness and best practice in Education for Sustainability.

Clarification of Terms

Clarification of the key term, "ecologically sustainable" and its implications within a specifically "Catholic" school culture, are explored through the literature review in Chapter 2. The associated terms Education for Sustainable Futures (ESF), Education for Sustainability (EFS), Education for Sustainable Development (ESD) and Sustainable Education (SE) are frequently used in global documentation and are also clarified in the literature study. Education for Sustainability (EFS) is the term most frequently used in this research in reference to education that aims to foster ecological responsibility.

This research attempts to bring together Catholic language used to describe a commitment to "ecological conversion", (a term commonly used by Pope John Paul II, as referred to earlier in this chapter) with the secular terms mentioned above that are used widely as demonstrated in the literature study and in policies from the United Nations Educational, Scientific and Cultural Organization (UNESCO) and other educational bodies that have drawn on UNESCO in developing a language proper to themselves. For example, Education Departments and curriculum development agencies interchange terminology such as "Environmental Education" and "Education for Sustainability" in specific contexts. Historically, "Nature Study" and "Environmental Education" were the terms used to teach environmental awareness

and action before the advent of the United Nations documentation, specifically the Tbilisi Declaration (1979).

Hence, there are a variety of environmental terms related to this research that need clarification. A summary of definitions, as sourced and described through the literature study in Chapter 2, is included in Appendix A.

Guiding Questions

In considering how to develop a research model to address the overarching research question, cited earlier in this introductory chapter, in which I asked how Catholic schools could be fully committed to Education for Sustainability, a number of practical, associated questions guided my thinking and planning. For example:

- What would such schools look like in practice?

- How would policy and practice be different from a mainstream school without a stated commitment to environmental sustainability?

- How do the educational programs of such schools reflect the commitment to Education for Sustainable Futures?

- Who are the key people to give inspiration and leadership to the development of such schools?

- Does the religious nature of a Catholic school have a particular contribution to make to education for sustainable development?

The intention to explore the nature and development of an ecologically sustainable Catholic primary school involved finding out where models of good school

development existed, if at all, what those schools looked like in practice and what had stimulated their development to this point.

The three key guiding questions to be addressed through the research were then refined as:

1.   What are the essential **characteristics** of an ecologically sustainable Catholic primary school?

2.   What have been **supporting factors** in the development of such a Catholic primary school?

3.   What have been the **barriers** to this development?

1.6   Context for the Research

The research was situated within the context of two Catholic primary systems of schools in Australia, the first in one of the Sydney dioceses in New South Wales and the second in a Queensland diocese. The research was focused particularly within two case study schools which, for reasons of privacy, are referred to as St Mary's (Sydney) and Newman School (Queensland). St Mary's is a Catholic systemic primary school, situated within one of the Sydney regions and is a highly multicultural school community in a low socio-economic area. Newman is also a Catholic systemic primary school, situated in a Queensland diocese which has a largely mono-cultural school population but with a significant number of Indigenous Torres Strait Islander students.

The choice of St Mary's and Newman School as case study schools resulted from my own experience and observation, both as an educational consultant working with primary schools within Catholic education in Sydney, and as a member of the Advisory Committee to Catholic Earthcare Australia, a Catholic Church organization that had strong links to the Catholic Education Office and the primary schools of the Queensland diocese where my study was focused.

1.7   Summary of the Thesis

The thesis contains six chapters which develop the topic as follows:

- Chapter 1 introduces the work

- Chapter 2 reviews the relevant literature

- Chapter 3 describes the epistemology, method and methodology that are employed in the study

- Chapter 4 reports and analyses findings from the first case study school

- Chapter 5 reports and analyses findings from the second case study school

- Chapter 6 compares findings from the two schools, draws conclusions and makes some recommendations in the light of the conclusions.

Chapters 2 to 6 are summarised in the next section.

Chapter 2 - Literature Review

Chapter 2 examines several fields of literature, related to the necessity for understanding and implementing environmental responsibility within education that

inform my study. The fields of literature are grouped under three major themes, that are foundational to this study:

- The Ecological Crisis

- Ecological Awareness and Conversion

- Response- Education for Sustainability

The fields includes religious literature that addresses ecology and environment, literature from the sciences, philosophy, education and the social sciences. These explore the ecological crisis and point to appropriate educational responses to that crisis.

The literature review informed the research by providing:

1. A rationale for Education for Sustainable Futures to be considered an essential component in policy development and implementation within contemporary primary Catholic schooling.

2. A rich historical and cultural context for the development of growing ecological awareness.

3. A theoretical framework in which the current developments in Education for Sustainable Futures can be placed.

4. Criteria for defining and describing the "ecologically sustainable Catholic primary school".

5. Examples from research of ways in which schools are attempting to provide quality Education for Sustainable Futures.

6. Definition of the essential concepts that form the language of my study- terms such as ecology, ecological conversion, creation theology, sustainable education and creation spirituality.

Chapter 3 - Theoretical Framework, Methodology and Research Methods

Chapter 3 introduces the theoretical perspective that underpins this study- constructivist post-modernism. There is justification given for this choice. The methodology employed, a qualitative, ethnographic research model, is described in this chapter and applied to the two case study schools. The epistemological understandings of this research are related to the philosophical school of phenomenology, wherein the researcher studies phenomena within a particular defined setting (in this case the school) in order to develop understandings and draw conclusions. The theoretical perspective, or as Crotty (1998) terms it, the "philosophical stance" informing the methodology is interpretativism, because the phenomena to be observed in the case study schools were open to continuous interpretation by the researcher.

Chapter 3 explains that since the study is qualitative it does not involve collection of statistical data and analysis of data, as in a quantitative approach, where findings are presented mathematically in order to prove a stated hypothesis and arrive at conclusions. I began the research with certain ideas already forming about what the key characteristics of an ecologically sustainable Catholic primary school might be. These were based on the literature study and my personal observation and experience. Likewise, I had some preconceived ideas about the factors that would encourage and discourage the development of such a school.

Ultimately, it was field work, the actual planned experience of working in these settings as an ethnographer, and engaging in dialogue with the research subjects,

which would form the basis of the methodology whereby the data collected could be interpreted and conclusions based on evidence could be constructed. The construction of new knowledge drawn from interactions with people and their world is consistent with the philosophical school of constructionism as Crotty (1998) terms it.

Case Studies. Chapter 3 also introduces the research methods used for this qualitative study. The overarching method used is that of the case study- undertaken in two Catholic primary schools, chosen because these schools were known to me through first hand professional association and they had a highly developed commitment to ecologically sustainable education.

The case study methods are both what Glaser and Strauss (1967) refer to as Observational and Historical, in that they study both the *present* life of the school as an environmentally committed educational community, and also the *historical processes* whereby the present environmental policy and practice were developed.

The case study schools, St Mary's, Sydney, and Newman School in Queensland, are similar in size and are both Catholic systemic primary schools. They presented a number of significant differences in clientele and this added interest in comparing findings between the two schools.

My role as researcher is described as a Participant Observer within the schools during the period of research, even though in the case of St Mary's, several years of professional presence as primary regional consultant within the school, preceded the actual research focus period. The limitations of this role as participant observer are

examined. The processes of interviewing subjects, leading focus groups with staff, collecting formal and informal data and analysing the data collected, are described and reflected upon in the light of Grounded Theory developed by Glaser and Strauss (1967), which offered some useful research methods. However, this thesis does not set out to develop new theory from the data qualitatively collected in the strict understanding of Grounded Theory, but rather to explore the nature of a particular type of educating community, namely a school that is committed to ecological sustainability. The research project seeks to identify and share with others who may read the thesis, or draw upon the research, what characterises such a school (ie. key characteristics or themes that stood out) and what supported or impeded such a school in its unique development. The work of a number of theorists in the area of qualitative research, especially Burns (2000) was drawn upon to develop an appropriate methodology and the practical methods employed in the field.

Development of a Research Framework.   Chapter 3 describes how I developed an adapted framework for the purposes of this research, which was titled *Steps in Becoming an Environmentally Active Catholic Primary School* (See Appendix B). The framework was used as a focus in drafting the interview questions, and also as an organiser for the analysis of data and reporting of findings. The framework was an adaptation that included concepts and values to suit the Catholic school context and was based on the New South Wales Department of Education and Training *Policy for Environmental Education (2001).*

Data Collection and Analysis.   Methods for collection, categorisation of data into key categories and their attendant properties and methods for analysis of data are

described. The ways in which saturation was reached in determining the key factors that promoted or impeded school development is described. The variety of methods used to achieve triangulation of data are outlined.

Chapter 4 Research Findings and Analysis- St Mary's School

In Chapter 4, the findings from research at St Mary's School in New South Wales are presented as:

- A description of the school's historical development as an ecologically committed school. This journey is described through a number of key defining themes that, from the data analysis, were found to characterise the unique development of the school.

- A description of the present culture of the school, presented within the five themes from the adapted framework *Steps in Becoming an Environmentally Active Catholic Primary School* (See Appendix B). These themes are: Whole School Planning, The Religious Dimension, Curriculum, Management of Resources, Development of School Site.

- The key factors that were recognised from the data gathering processes to have positively influenced the ecological development of the school and those that were barriers to that development are identified, summarised and prioritised. Some initial conclusions are drawn about these influences on the development of the life of the school.

Chapter 5 Research Findings and Analysis- Newman School

In Chapter 5, the findings from research in Newman School in Queensland are presented, again in the following sequence as for St Mary's in Chapter 4:

- A description of the school's historical development as an ecologically committed school.

- The present culture of the school is described and presented within the five themes from the adapted framework *Steps in Becoming an Environmentally Active Catholic Primary School* (See Appendix B).

- The key factors that were recognised from the data gathering processes to have positively influenced the ecological development of the school and those that were barriers to that development are identified, summarised and prioritised. Some initial conclusions about these influences are drawn. These conclusions are further developed in Chapter 6 for both case studies.

Chapter 6 Comparison, Conclusions, Recommendations

In Chapter 6, a comparison is made between the findings from the two case study schools and conclusions drawn from the similarities and differences found in their profiles and development pathways towards becoming ecologically sustainable Catholic Primary schools.

The overall conclusions are identified from comparison of the two case study schools and from the literature study regarding:

1. The characteristics of an ecologically sustainable Catholic primary school

2. The factors that can effectively support the development of such a school

3. The possible barrier*s* to such development.

The chapter also makes some recommendations in the light of the research findings regarding:

- Some possible implications for Catholic systems and mandating diocesan authorities regarding ways in which they could support themselves as organizations to become committed to Education for Sustainable Futures and how they could resource schools to develop as ecologically sustainable educating communities.

- Ways in which an individual Catholic primary school can grow towards becoming environmentally active.

- Possible ways in which a school can be effectively supported in beginning to work towards becoming an ecologically sustainable Catholic primary school.

Chapter 2. LITERATURE REVIEW

2.1   Introduction

The aim of this research is to describe the characteristics of an ecologically sustainable Catholic primary school and the factors that can support or inhibit its development. In addressing this aim, there are some key concepts to be examined through a study of several fields of literature that are related to ecological sustainability within a Catholic school context.

These key concepts include:

1.   The nature of the ecological crisis, which necessitates the moral and religious stance of ecological conversion.

2.   Ecological conversion, a theological term which is uniquely characteristic of the writings of Pope John Paul II, and is fundamentally related to human formation in a Catholic educational context.

3.   The nature of Education for Sustainable Development (ESD), Education for Sustainability (EfS) and Education for Sustainable Futures (ESF), which are educational responses to the ecological crisis.

Education for Sustainable Futures (ESF) and Education for Sustainability (EfS) have developed largely outside the Catholic school context, but have major applications for Catholic schools in responding to the call to ecological conversion within a specifically Catholic religious context.

2.2   Definitions from Literature

In the interests of clarity, it is important to state what I understand by the various terms associated with this research topic that are found in the literature, and to state the sources of these definitions. Literature in this field, depending on the particular discipline, author and date of the source, variously uses terms such as ecology, found for example in the title of the Australian Catholic Bishops' Committee for Justice, Development, Ecology and Peace (2003); environment or environmental education (EE), used in state education ministerial documents such as the NSW *Environmental Education Policy* (2001) for NSW government schools; sustainability and Education for Sustainability (EfS), the preferred terms in UN literature; earth studies, found in the work of Steven Van Matre (1990); sustainable education, the preferred term in the work of Sterling (2001); eco-spirituality, a term used in documentation about a spirituality of the earth and environmentalism, and used sometimes in a disparaging way by writers who see the environment movement as expressing only an ideology. The significance and meaning of these terms is dependent on emphasis, origin and context.

Sometimes for the sake of clarity and to avoid confusion for teachers who are not experts in the field, authors of curriculum documents may choose to use the more familiar term "environmental education" (EE) rather than the more generally accepted contemporary terms "Education for Sustainable Futures" (ESF) and "Education for Sustainability" (EfS), that are common in current education policies and discourse internationally and are used in academic literature or documents from the United Nations.

In response to the growing use of "Sustainable Development" within the literature of the United Nations and in particular UNESCO and UNEP (UN Environment Program), the term Education for Sustainable Development (ESD) evolved and was applied in educational settings. For example, in a 1998 report to the UK National Curriculum Review, prepared for the Panel for Education for Sustainable Development by Stephen Sterling, and found on the government website, the following definition was offered:

> Education for Sustainable Development is about the learning needed to maintain and improve our quality of life and the quality of life of generations to come. It is about equipping individuals, communities, groups, businesses and government to live and act sustainably; as well as giving them an understanding of the environmental, social and economic issues involved. It is about preparing for the world in which we will live in the next century, and making sure that we are not found wanting.

The report goes on to further modify this definition to give meaning and currency for schools as follows:

> Education for sustainable development enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now without damaging the planet for the future.

Tilbury, D and Wortamn, D (2004), writing about sustainable futures on the ARIES website, clarify the term Education for Sustainability (EfS), seeing it as entirely beyond the scope of Environmental Education, the term commonly used previously in educational contexts . They state that, "Educators require a new set of skills, such as envisioning, critical thinking and reflection, dialogue, and negotiation, collaboration and building partnerships". In describing the scope of this educational model they state:

Education for Sustainability provides a tool to assist and engage us in negotiating (a sustainable) future and deciding the consequences of our decisions. This means that education is more than the traditional practice of Environmental Education, which focuses on teaching and learning about, and 'in' the environment. Instead, Education for Sustainability seeks a transformative role for education, in which people are engaged in a new way of seeing, thinking, learning and working. People are not only able to explore the relationships between their lives, the environment, social systems and institutions, but also to become active participants and decision-makers in the change process.

Tilbury, Coleman and Garlick (2005) in reporting *A National Review of Environmental Education and its Contribution to Sustainability in Australia* assert that the continued use of "environmental education" as the defining term in school education documents during the previous ten years reflects the slowness of Australian school systems to adopt "the language of sustainability" (p.1). These authors point out that intergovernmental meetings such as the *World Education Forum* (2000) have advocated the reorientation of school curricula towards "increased support for learning for sustainability" and that countries such as Canada and New Zealand had embraced "the challenge of learning for sustainability by developing national frameworks or documents to stimulate the process" of such a reorientation (p.1).

Steven Van Matre, the founder of Earth Education, (2007) warns, on the Earth Education website, against the expressions of "environmental education" that have been part of educational programs in western educational systems which have paid lip service to the need for changes of personal lifestyle and habits that can lead to sustainable living through a reduction in an individual's ecological footprint. His stated view is that:

there are a lot of good people out there doing good things for the earth that they call environmental education, but in general we feel the original mission of environmental education went astray. It was trivialized by mainstream education, diluted by those with other agendas, and co-opted by the very agencies and industries that have contributed so much to our environmental problems. Many well-meaning teachers and leaders out there don't know the real origins of the material they have been given or understand how insidious those materials are in conveying a consumer-oriented, exploitive world view (often in what they leave out of their explanations and examples). Nor does the public realize that the world's formal educational response to our environmental problems has been merely to encourage teachers to infuse environmental messages and perspectives into all of their subjects.

As recently as 1996, in a UNESCO report addressing teacher education, Fien and Tilbury (1996), refer consistently to "environmental education" (p.2) as the subject of their report. They state, "Despite the rising interest in environmental education in schools and the expectation of governments that environmental education will play a part in maintaining the sustainability of eco-systems, several evaluation studies of environmental education indicate cause for concern" (p. 2). The use of this term continues throughout the report even though reference is made to "education for a sustainable environment" (p. 2) and the limitations of "environmental education" as an aspect of schools' curricula are "cause for concern" as stated above. It can be concluded that during the 1990's there was not yet a widespread use and understanding within mainstream education of the terms Education for Sustainable Development (ESD), Education for Sustainability (EfS) or Education for Sustainable Futures (ESF).

Another example of a particular term used within a specific context is the use of the term "environmentally active school" in the Department of Education and Training NSW *Environment Education Policy* (2001), rather than the term "sustainable

education" used by in the UK context by Sterling (2001) to describe schools that are committed to sustainable educational policy and practice.

Sterling (2003) in an online article critiques both traditional Environmental Education (EE) and Education for Sustainable Development (ESD) as they have been reflected in schools policy and practice. He claims, "They have both made very little difference either to the state of education or the state of the environment" and further goes on to contend that,

> The growth paradigm, individualism and consumerism, tend to be supported uncritically, either directly or by default, and the growing influence of the private sector and corporations on education is likely to exacerbate this.

He goes on to claim that education, rather than being part of the solution, is largely still part of the problem because "we are educated by and large to 'compete and consume' rather than to 'care and conserve'.

The term "Sustainable education" was adopted by the Sustainable Schools movement in Australia and by the Victorian agency, the Centre for Education and Research in Environmental Strategies (CERES) as well as by the Gould League of Australia. The term, when applied comprehensively, has the potential to encourage learning that will empower students to choose a sustainable lifestyle as advocated above by Van Matre (2007) and by Sterling (2003), who, in the online article mentioned above, sees sustainable education as an alternative to the test-driven, outcomes based systems of education that have imposed managerial and economic values on education. He maintains that such education "implies putting relationship back into learning and

education- seeking synergy between all aspects of education- ethos, curriculum, pedagogy, management, procurement and resource use, architecture and community links".

Unless there is some particular justification for using another term, in describing current approaches to what was traditionally referred to as nature studies or environmental education, I will use the term "Education for Sustainability" (EfS) or Education for Sustainable Development (ESD). A list of terms, their definitions and sources is provided at the end of the research (See Appendix A).

2.3   Overview of Literature

The relevant fields of literature range across disciplines within science, theology, the social sciences and education. One of the challenges for this research is to make the links across the many disciplines to refine and articulate an environmental imperative that has credibility in informing and shaping a Catholic school curriculum that can facilitate students' education towards living and working sustainably.

Table 2.1 summarises the fields of literature to be explored in this review and indicates the order in which they are addressed in naming and describing the major concepts that underpin this study. The major concepts include the following:

Table 2.1 *Overview of Literature Review*

Key Concepts	Associated Fields Of Literature
1. The Ecological Crisis	• Politics and Economics *Club of Rome "Limits to Growth"* *United Nations documents* • Science • Philosophy *Deep Ecology* *Eco-Feminism* • Religion *Catholic Church teaching* *Eco-Theology*
2. Ecological Awareness and Conversion	• Religion *Papal Teachings* *Catholic Church documents* *Scripture* *Eco-Theology* *Eco-feminist Theology* *Protestant Theology* *Creation Spirituality* • Philosophy *Deep Ecology*
3. Response- Education for Sustainability	• Religion *Catholic Documents* • Research Literature • ESD documentation • Mainstream Education *Educational Policies* *Curriculum Frameworks* *Diocesan Education documents*

The Nature of the Ecological Crisis

It was important to establish from the literature that there are credible grounds to recognise the existence and urgency of the ecological crisis. This has been doubted and denied in some schools of thought, which have condemned those who recognise

an environmental crisis as proponents of exaggeration or supporters of a green conspiracy. In Britain, prior to the G8 conference of 2005, Professor Bob May (2005), Science correspondent for The Guardian wrote, as reported on The Guardian website (2005):

> During the 1990s, parts of the US oil industry funded - through the so-called Global Climate Coalition (GCC) - a lobby of professional skeptics who opposed action to tackle climate change by cutting greenhouse gas emissions.

May further claimed that, "The UK has become a target because the government has made climate change a focus of its G8 presidency this year" and that "chief scientific adviser Sir David King, described climate change as a bigger threat than terrorism" and hence "became for the denial lobby public enemy number one". Debate about the existence or otherwise of climate change as a major concern for governments and citizens has been robust during recent decades to the point where sincere environmentalists have despaired of the rate of debate and considered that public policy makers were fiddling while Rome burned. Such a sense of urgency has inspired this thesis.

The thesis rests on the belief that the ecological crisis is indeed an issue of absolute urgency and must be addressed suitably through education. The literature that addresses the nature of the ecological crisis is drawn from various disciplines including the sciences, social sciences, philosophy and religion.

Ecological Awareness and Conversion

This thesis also rests on the assumption that humans can change their attitude and lifestyle in terms of ecological responsibility. This is a basic understanding of all

education- that humans can and do learn and that learning can be structured to include the essential learnings needed for fruitful and responsible living. Ecological responsibility emerges from the literature study as one of these essential learnings.

The fields of literature explored in this chapter to describe and justify ecological conversion as a key understanding come from religion, spirituality, and philosophy. Some of the literature sources drawn upon to establish the first key concept, the nature of the ecological crisis, equally have a contribution to make in understanding and establishing this second key concept. For example, Papal teachings explored in this chapter about the environment often both cite scientific evidence that there is an urgent ecological crisis and also call all of humanity to address that crisis through spirituality that can foster a change of heart and lifestyle.

A Response to the Crisis- Education for Sustainability

The third key concept on which the thesis rests in the understanding that education can be an effective means of bringing about the ecological conversion which the crisis demands as a human response. The literature study again includes religious literature, especially Catholic teaching that promotes education which is holistic, able to assist humans in becoming both responsible global citizens and sensitive members within the natural earth community.

Specific educational literature that includes an ecological perspective, such as literature related to Education for Sustainable Development (ESD), is explored. It shows that such an educational orientation has been a major preoccupation of UNESCO and of pioneering educationists whose work is documented in the research

literature explored. The findings as presented in the literature give reassurance that an education towards ecological responsibility is indeed possible and urgent and that education systems which ignore ESD as irrelevant or too difficult are limiting the essential goals of true education.

It is noteworthy that there is an overlap in the fields of literature as each concept is explored. This is to be expected when one considers that the natural ecology at the heart of this thesis is balanced by the ecology of human knowledge and learning which form an intricate learning web gleaned through multiple disciplines working together to establish truth based on sound evidence and research. The thesis aims to build up (construct) understandings based on interpretations of the literature and the data collected, rather than to isolate pieces of knowledge.

2.4   Nature of the Ecological Crisis

Since the publication of *Silent Spring* by Rachel Carson (1962) in the United States with its scientific critique of the use of chemicals in agriculture, there have been numerous studies claiming that the ecological systems of the planet are under severe stress, requiring a human response of environmental responsibility. The key responses are discussed here.

Political and Economic Responses to the Environmental Crisis

"The Limits to Growth"

One of the earliest major studies addressing the sustainability of the planet, given the state of the environment, was carried out in the early 1970's by Meadows, Meadows,

Randers and Berhans III (1972). These researchers had been commissioned by The Club of Rome, a group of eminent businessmen, statesmen and scientists, to set up a model to examine the long-term causes and consequences of growth in population, industrial capital, food production, resource consumption, and pollution. The results of this two year study were published in a groundbreaking book *The Limits to Growth* (1972), which became a pioneering landmark in the growing movement for sustainable development. The study predicted that if the present growth trends in world population, industrialization, pollution, food production, and resource depletion continued unchanged, the limits to growth on this planet would be reached sometime within the next 100 years.

However, they claimed as stated in the abstract of the study prepared by Pestel (1972) and made available on the Club of Rome website, that it was still possible to alter these growth trends and to "establish a condition of ecological and economic stability that is sustainable far into the future" and would allow for the reasonable needs of each person on earth to sustain life, to be provided for. For this to be achieved it was argued, humanity would need to begin immediately to work toward achieving this goal of ecological and economic stability. *The Limits to Growth* was a warning, albeit controversial, to world leaders, economists, environmentalists and scientists.

United Nations

In 1972 the first United Nations Conference on the Human Environment was held in Stockholm, Sweden, and was the first contemporary, global diplomatic gathering to address human activities in relationship to the environment. This conference produced a set of principles, the Stockholm Declaration and Action Plan (1972), and led to the

founding of the United Nations Environment Programme. The Declaration spoke of the need for human development that respected the environment, as follows:

> A point has been reached in history when we must shape our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference we can do massive and irreversible harm to the earthly environment on which our life and wellbeing depend (Parag. 6).

The Declaration set out 26 Principles that addressed "the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment" (Parag. 1).

On the twentieth anniversary of the Stockholm Conference, the report of the United Nations conference on environment and development at Rio de Janeiro (1992) produced the *Agenda 21* document, which addressed the nature of sustainable development, and the Rio Declaration on Environment and Development, which provided principles for the implementation of sustainable development. The preamble to the Rio Declaration states that it is aimed at, "working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system, recognizing the integral and interdependent nature of the Earth, our home" (1992).

The earlier United Nations report *Our Common Future* (1987), edited by Gro Harlem Bruntland, had issued a warning and a challenge to all governments that planetary resource use must be sustainable:

> Over the course of the 20th century the relationship between the human world and the planet that sustains it has undergone a profound change. Major, unintended changes are occurring in the

atmosphere, in soils, in waters, among plants and animals, and in the relationships among all of

these. The rate of change is outstripping the ability of scientific disciplines and our current

capabilities to assess and advise. It is frustrating the attempts of political and economic

institutions, which evolved in a different, more fragmented world, to adapt and cope. To keep

options open for future generations, the present generation must begin now, and begin together,

nationally and internationally (p.3).

The Bruntland Report prepared the ground for the later major documents of the Rio

Conference in 1992 and defined sustainable development as development that, "meets

the needs of present generations without compromising the ability of future

generations to meet their own needs" (Parag. 2).

The United Nations World Summit on Sustainable Development, held in

Johannesburg in 2002, continued the agenda of the earlier United Nations

environmental conferences.

World Watch Institute

A number of non-governmental, global bodies have worked concurrently with the

United Nations to build up awareness and research that can address the world

environmental crisis.

An example is The World Watch Institute, established in 1972 by Lester Brown and

the Rockefeller Brothers Fund, which publishes an annual report, *State of the World.*

These reports progressively research and document worldwide progress in achieving

sustainable development. In the foreword to the 2005 World Watch Report, found on

the organization's website, in addressing the relationship between terrorism, poverty

and environmental sustainability, Mikhail Gorbachev expresses the urgent need for " a

policy of 'preventative engagement': (involving) international and individual solidarity as well as action to meet the challenges of poverty, disease, environmental degradation and conflict in a sustainable and nonviolent way".

World Conservation Union

The World Conservation Union (also known as the The International Union for the Conservation of Nature and Natural Resources (or IUCN), is another global body that monitors the state of ecological systems and publishes reports on Education for Sustainability through its Commission on Education and Communication. Its website claims that, "While the idea of conserving the environment has steadily gained political acceptance over the past few decades, people still misunderstand and ignore the goods and services that nature, biodiversity and ecosystems provide to us". In regard to biodiversity, it further claims that species of animals and plants are threatened with extinction and many ecosystems – wetlands, forests – are being degraded and destroyed, while we know that natural ecosystems provide humans with a large range of highly valuable services, such as sources for development of medical cures and plant and animal foods.

Australian Context

In the Australian context, the state of the environment and its history of devastation since white settlement, have been described and documented in the work of biologist Tim Flannery (1993) who has written extensively on the ecological history of Australia and New Zealand and the environmental impacts of white settlement. In his latest work, Flannery (2005) addresses the challenge of global warming and climate change.

Serventy (1988) described the factors that pointed to impending ecological devastation in Australia in terms of water, soil, land use, waste removal and threat to wild life. The World Conservation Strategy launched in thirty countries in 1980 resulted in the Australian response, the National Conservation Strategy for Australia's Biological Diversity, and Serventy states that at its inaugural conference "Present in our minds was the belief that overshadowing all our deliberations were the new 'horsemen of the apocalypse'- exploding human populations, the profligate use of the earth's non-renewable resources, and nuclear war" (p. 15).

Lines (1991), after describing the devastating impact of European settlement on the natural environment through generations of logging, sealing, whaling, farming and deforestation, concludes that a sense of our history is essential if we are to plan for a more sustainable future.

> Only when Australians reclaim their own history, a history they made, can they succeed not only in fighting *for* nature but also *against* an historical trend of which a poorer and uglier world is a result (p.279).

The Australian Conservation Foundation (ACF) is Australia's largest non-profit organization. The website described the Foundation as dedicated to addressing, "the most important and urgent environmental problems, seeking change with lasting political, economic and social support. The ACF has played a key role in increasing protection for some of Australia's most outstanding natural assets". A press release from the ACF website called the attention of the Australian government to the continuously deteriorating state of the Australian environment:

> ACF has called on Australia's governments to strengthen efforts to protect our environment following the release today of ABS figures highlighting ongoing declines in biodiversity,

salinity, rivers and greenhouse pollution levels. While the economic and societal indicators, including health, education, unemployment, income, productivity and national wealth, show improvement over the past ten years, the key environmental indicators of natural landscape (including biodiversity, salinity, and rivers) and international environment concerns (greenhouse emissions) show ongoing deterioration.

All these organisations have played a key role in alerting the public and governments to the existence and nature of the ecological crisis.

Ecological Awareness and Conversion- Catholic Church Teaching

Defining Ecological Conversion

The concept of "ecological conversion", included in the opening quotation from Pope John Paul 11 in Chapter 1, is foundational to this research. At this point, a clarification of the term as it applies within this context is called for.

Rambo (1993) comprehensively examines the term "conversion". He maintains from the outset that it is a specifically religious experience. "In the Judeo-Christian scriptures, the Hebrew and Greek words generally equated with *conversion* are words that literally mean *to turn* or *return.* The precise meaning of the turning or returning is contextually determined" (p.3). He states that the process of conversion, that is, religious change, "takes place in a dynamic force field of people, events, ideologies, institutions, expectations and orientations" (p.4). Further, it is a process that happens over time, is contextual and is influenced by multiple factors that are cumulative and ongoing.

In order to avoid within this research framework the pitfall of associating the use of the term "conversion" with force or coercion, concepts totally at variance with contemporary educational best practice, it is useful to note Rambo's reliance on Berger and Luckman's (1967) analysis of religious options. Rambo (p.29) cites three types of religiosity as described by Burger and Luckman. Firstly, there is the deductive, which is reliant on a strong, given interpretation of sacred text or belief that "provides a 'legitimate' interpretation of life and God" (p.29). By implication, this option requires minimal personal discernment and a leap of faith.

The second religious option, reduction, is "utilised by people who feel that *contemporary* philosophical and theological orientation is epistemologically superior to all other orientations", thereby devaluing the religious tradition. Such an interpretation tends to see conversion as a "coping mechanism in religious garb" (p.30), geared to meet immediate human needs such as increase of personal status, rather than a deep and lasting personal conviction that affects the whole of one's life.

The third orientation is the inductive, whereby the religious tradition and human experience are equally respected and in dialogue, encouraging a "phenomenological approach to conversion, allowing for diversity and complexity" (p.30). Rambo states that he agrees with Berger and Luckman that this third approach is "the most comprehensive and appropriate to the contemporary situation" (p.30). This third form of conversion is the most appropriate model in an educational setting generally and specifically within this research.

It is important then to draw connections between the inductive model of conversion and appropriate pedagogy to encourage student growth in ecological awareness and responsibility. A Catholic school is, by definition, concerned with "conversion" and by extension, with "ecological conversion" as named by Pope John Paul 11. However, no school truly committed to the holistic development of its students would entertain a definition of learning that included a dimension of coercion, skewed sources of information or short-changing of the processes required for authentic learning to occur. Fien (2002), Innovative Professor of Sustainability at RMIT Melbourne and an Australian pioneer in Environmental Education studies, has written extensively with Yenken and Sykes about the responses of young people to environmental awareness and cautions against any form of coercion, unrealistic expectation for change of lifestyle or a pedagogy that is not fully respectful of student development. Hence, the inductive model as described is arguably the most appropriate for this research in interpreting the call to "ecological conversion".

The methodology employed as described in Chapter 3 is also compatible with this model since it is based on phenomenological approaches within a constructivist framework, allowing the researcher the freedom as learner to draw on the Catholic tradition, together with current research and human experience within the case study schools to reach new learnings and point towards possible changes needed to bring about ecological sustainability.

Catholic theologian and educator, Denis Edwards (2006) opens up the phrase "ecological conversion" in a way that takes it beyond but is not incompatible with its

origins in the writings of Pope John Paul 11 and the descriptions found in Rambo (1993). He writes:

> This movement of ecological conversion is far wider than the church. It involves people from all kinds of ethnic, political and religious backgrounds. In this movement, Christians are called to humbly take their stance alongside others, many of whom have long led the way in ecological conviction and practice. However, the church has its own specific task in this movement for conversion. It is called to witness to the God of Jesus Christ, and to this God's love for all creatures. In this process, the church itself is called to ecological conversion (p. 3).

Edwards (2006) also sees ecological conversion on the part of the church to include being "on the side of suffering creation" as well as being on the "side of the poor in the struggle for justice and on the side of women in their struggle for equality" (p.3). Here there is an admission that the church has not clearly witnessed to a change of heart and attitude that reaches out to the whole of reality. In this regard, it has much to learn from the proponents of deep ecology and eco-feminist theology and to Catholic religious orders and some agencies, as will be discussed later in this chapter, which have recognised in theological and pastoral terms the links between peace, justice and the integrity of creation. Christians have often been at the forefront of the destruction of the natural world for human gain at the expense of other species and the ecological systems of air, water and soil. They have not always seen the connections between other species and themselves as part of the Earth community.

McDonagh (1986) reiterates the failure of the Christian faith to respond to the ecological crisis and states that humans need to find again their place within the Earth community, a place that had been recognised in pre-Renaissance times before more rationalist models of progress emerged with thinkers such as Bacon, Newton and

Descartes which lacked due recognition of the sacredness of the natural world. McDonagh (1987) refers to post-Renaissance times as the "machine age" (p. 110), influenced by an image of God as "the omnipotent clockmaker who has fashioned the Cosmos, wound up the clock and more or less abandoned it to its own devices" (p.110). He maintains that for an effective "theology of creation" and "an adequate understanding of God for our era" (p.109) to emerge, we need a change of attitude to God that can inform our relationship with the earth. This attitude needs to reinstate the understanding that "the Divine manifests itself in natural phenomena" (p.109). McDonagh says that an understanding of the numinous is particularly preserved in the cultures of tribal peoples from whom "Christians have much to learn" (p. 109) in their efforts to recover something of this sense of reverence and holism within the natural world. An appreciation of the numinous encountered in the created world is surely at the heart of ecological conversion and closely allied to eco-theology.

Both the case study schools examined in Chapter 4 and 5 understood that Indigenous cultures had much to teach their school communities about respect for and integral relationship with the natural world and positively encouraged an Indigenous presence.

Catholic Church Social Teaching

Up until the time of Pope John Paul II's pontificate, there were few explicit examples of official Catholic Church teaching that directly addressed ecological issues. There were constant references in Catholic social teaching to the need for respect to be paid to human dignity and the requirement for justice in the equitable sharing of the goods of this world. However, these principles did not include the need to address the sustainability of the earth's resources, without which no life, human or otherwise, can

be sustained. In fact, the Vatican Council document *Gaudium et Spes,* (The Church in the Modern World) (1965), found in the collection of conciliar documents edited by Flannery (1975), addresses the key signs of the times in a way that was revolutionary when it was promulgated, but makes only fleeting references to "nature" and states that, "humanity can and should increasingly consolidate its control over creation" (Parag. 9), continuing that, "man (sic) has ceaselessly striven to better his life. Today, however, with the help of science and technology, he has extended his mastery over nearly the whole of nature and continues to do so" (Parag. 89). The domination of nature through science was still seen as a clear sign of progress. The body of Catholic Church social teachings from 1891 onwards when Pope Leo X11's encyclical *Rerum Novarum* was first published, was anthropocentric in orientation, stressing the great principles of human dignity and justice without making the connection to ecological sustainability as the foundation of survival for all species, including humans, and of the planet itself.

However, there are some references to environment and ecology in Catholic social teachings after the Vatican Council, which ended in 1965.

As early as 1971, Pope Paul V1's encyclical *Octogesima Adveniens* warned against the exploitation of nature and the resultant pollution.

> Man (sic) is suddenly becoming aware that by an ill-considered exploitation of nature he risks destroying it and becoming in his turn the victim of this degradation. Not only is the material environment becoming a permanent menace - pollution and refuse, new illnesses and absolute destructive capacity - but the human framework is no longer under man's control, thus creating an environment for tomorrow which may well be intolerable (Parag. 21).

Pope John Paul 11 (1978) pointed out in his encyclical *Sollicitudo Rei Socialis* that, "natural resources are limited; some are not, as it is said, renewable. Using them as if they were inexhaustible, with absolute dominion, seriously endangers their availability not only for the present generation but above all for generations to come" (Parag. 34).

Redemptor Hominis (1979) warned that technology was a potential means of alienation from the natural world.

> We seem to be increasingly aware of the fact that the exploitation of the earth, the planet on which we are living, demands rational and honest planning. At the same time, exploitation of the earth not only for industrial but also for military purposes and the uncontrolled development of technology outside the framework of a long-range authentically humanistic plan often bring with them a threat to man's (sic) natural environment, alienate him in his relations with nature and remove him from nature. Man often seems to see no other meaning in his natural environment than what serves for immediate use and consumption. Yet it was the Creator's will that man should communicate with nature as an intelligent and noble "master" and "guardian", and not as a heedless "exploiter" and "destroyer" (Parag. 15).

Pope John Paul 11 in his encyclical *Centesimus Annus* (1991a) made reference to the "ecological question" which is linked to the problem of consumerism: "In his desire to have and to enjoy rather than to be and to grow, man (sic) consumes the resources of the earth and his own life in an excessive and disordered way" (Parag. 37).

Identifying the Ecological Crisis

During his pontificate, Pope John Paul 11 developed a stronger body of teaching related to the environment and what he termed the "ecological crisis" than any of his predecessors. This may be attributed in part to his closeness to nature, evidenced in frequent holidays in the Alps. When vacationing in the Italian Alps in 1990, he was

quoted in a collection of writings from the Catholic Conservation Centre website as commenting, "I love these mountains; up here one breathes with the pure mountain air the mysterious invitation to faith and conversion."

The New Year's Day message of Pope John Paul 11, *Peace with God, Peace with the Whole of Creation* (1990), is the most comprehensive of these statements. He spoke of the "new ecological awareness" that was dawning and that needed to be developed "into concrete programs and initiatives" (p.2). He taught that for Christians, an ecologically aware worldview is "drawn from Revelation" and "the dominion humans were called by God to exercise over the earth as described in Genesis 1:28, should have been exercised in wisdom and love" (p.2). Instead humanity deliberately "went against the Creator's plan", and this led, not only to humans experiencing self-alienation, but also to earth's "rebellion" against human kind and its "suffering" through the "increasing devastation of the world of nature" which is "apparent to all" (p.3).

A Moral Crisis

Pope John Paul II went on to state that no mere rational solution can fully address the "damage" which has been done. "Rather, we must go to the source of the problem and face in its entirety that profound moral crisis" (p.5).

Signs of Ecological Devastation

Pope John Paul II (1990) listed several manifestations of the crisis: "indiscriminate application of advances in science and technology", producing "harmful, long term results" (p.5). Among these are pollution, ozone depletion, the 'greenhouse effect', vastly increased energy demands, industrial waste, use of certain herbicides, coolants

and propellants, uncontrolled destruction of animal and plant life and the possible submerging of low-lying lands through atmospheric changes. He stated that one has to come to the "painful conclusion" that "we cannot interfere in one area of the eco-system without paying due attention to the consequences of such interference in other areas and to the well-being of future generations" (p.5). And further, that "an education in ecological responsibility is urgent: responsibility for oneself, for others, and for the earth", calling the ecological crisis a "moral issue" (p.4).

A Response of Holiness and Justice, a Call to Ecological Conversion

In his General Audience Address of January 17, 2001 Pope John Paul II (2001a) stated that the role of humans, symbolised in Genesis through God's commission to name each of the created creatures, is not a mission of *mastery over nature*, but rather "a work of life and peace", with the responsibility, defined in the Book of Wisdom, to govern the world "in holiness and justice" (Wisdom 9:3). When this responsibility is neglected there is resultant ecological devastation, as described by Pope John Paul 11:

> If one looks at the regions of our planet, one realises immediately that humanity has disappointed the divine expectation. Above all in our time, man (sic) has unhesitatingly devastated wooded plains and valleys, polluted the waters, deformed the earth's habitat, made the air unbreathable, upset the hydro geological and atmospheric systems, blighted green spaces, implemented uncontrolled forms of industrialisation, humiliating- to use an image of Dante Alighieri ("Paradise," XXII, 151)- the earth, that flower-bed that is our dwelling.
>
> It is necessary, therefore, to stimulate and sustain the 'ecological conversion', which over these last decades has made humanity more sensitive when facing the catastrophe towards which it was moving (January 17, 2001).

This call by John Paul II to a deep and personal conversion was issued again in an address to a study week at the Pontifical Academy of Sciences of the Vatican in 1986,

titled 'Science or Survival and Sustainable Development' (1999), found on the Academy's website and quoted in the Catholic Earthcare Australia video *The Garden Planet* (2001): "Human behaviour sometimes is the cause of serious ecological imbalance, with particularly harmful and disastrous consequences", and hence "each one is invited to a deep personal conversion in his or her relationship with others and with nature".

Education for Responsibility

During a visit to Zamosc in Poland, Pope John Paul II (1999b) gave an impassioned speech during the Liturgy of the Word at a Mass to governments and educators, quoted untitled on the Catholic Conservation Centre website:

> The beauty of this land leads me to appeal its preservation for future generations. If you love our native land, do not let this appeal go unanswered! In a special way I call upon those who have been entrusted with responsibility for this country and its development, and I urge them not to neglect their duty of protecting it against environmental destruction. Let them devise programs for the protection of the environment and ensure that they are properly put into effect! Above all, let them train people to show respect for the common good, for the laws of nature and life. In the family and in schools there must be training in respect for life, goodness and beauty. All followers of Christ ought to examine their own lifestyle (1991b p. 8).

In the Post-Synodal Exhortation *Ecclesia in Asia* Pope John Paul II (1999a) has called for the need, "to educate people, especially the young, in environmental responsibility, training them in the stewardship over creation which God has entrusted to humanity" (p. 41).

The Universal Catechism of the Catholic Church (1994) explains the moral imperative referred to by Pope Paul 11 above in terms of "Respect for the Integrity of Creation"

(Parag. 2415), and associates this respect with the Seventh Commandment, "Thou shalt not steal". This teaching links to the thinking surrounding sustainable development, based as it is on the understanding that it is unsustainable to use Earth's resources in a way that would jeopardise the future needs of others, a form of theft. The Catechism (p.580) states that, "Man's (sic) dominion over inanimate and other living beings granted by the Creator is not absolute; it is limited by concern for the quality of life of the neighbour, including generations to come; it requires a religious respect for the integrity of creation". This Catholic doctrine, with its recognition of the rights of future generations, closely relates to the United Nations definitions of sustainable development and Education for Sustainable Development (ESD), explored later in this chapter.

The Catholic teachings related to ecological responsibility have an immediate application to Catholic schools, providing a clear mandate from the Church to educate for environmental responsibility.

A Culture of Peace

In his Papal teachings, Pope John Paul II constantly relates ecological responsibility to world peace. His New Year's Day Message (1990), refers to a "growing contemporary awareness that global peace is threatened not only by injustice but also by a lack of due respect for nature, and by the plundering of natural resources and a progressive decline in the quality of life" (p.1). He concludes that the ethical values that underpin a peaceful society, apply equally to the "ecological question" (p.1).

The linking of the concepts of peace, justice and ecology is increasingly important in non-Papal Catholic theological scholarship that addresses global ecological issues and gave rise to eco-theology, which will be discussed in the following sections. Some examples of eco-theology are seen in the work of Berry (1988, 1999), Brown (2004), Edwards (1991, 1992, 1995, 2006), McDonagh (1986, 1990), O'Murchu (1997) and Radford Reuther (1992).

Catholic social teaching provides strongly articulated support for a school community to consider the importance of situating its commitment to ecologically sustainable education within an overall culture of peace as was demonstrated in one of the case study schools, St Mary's, reported in Chapter 4.

Catholic Earthcare Australia

In 2002, the Australian Catholic Bishops' Committee for Justice, Development, Ecology and Peace established an agency, Catholic Earthcare Australia, in direct response to the call of Pope John Paul 11 for "ecological conversion". Its mandate from the Australian Catholic Bishops was to raise consciousness about the environment. Its website declared:

> Catholic Earthcare Australia is mandated, through the activities of education, research and advocacy to give leadership in responding to the call of Pope John Paul to "stimulate and sustain ecological conversion" (2002).

The Catholic Bishops of Queensland (2004), issued a pastoral letter on the Great Barrier Reef titled *Let the Many Coastlands be Glad.* The document, prepared for the

Bishops by Catholic Earthcare Australia in conjunction with Brisbane Catholic Justice and Peace Commission and the Catholic Social Action Office, brings together the challenge of caring for the Reef with the commitment to ecological awareness and action as "key moral issues for the Christian conscience" (p.3). This statement, together with its counterpart *The Gift of Water* (2004) published by Catholic Earthcare Australia with the Australian Catholic Bishops' Committee for Justice, Development, Ecology and Peace on the ecological challenges of The Murray Darling Basin, contextualised eco-theology in a way that was new within the Australian Catholic Church. It provided Catholics and others with practical, ethical guidance in responding to local, critical ecological issues.

At the national level, the Australian Bishops' Committee for Justice, Development Ecology and Peace (2002), a committee of the Australian Catholic Bishops' Conference, published the Social Justice Sunday Statement *A New Earth: The Environmental Challenge.* The statement left no doubt that responsibility for the earth was a central challenge for living the Catholic Faith.

> In justice, it is an urgent task for Christians today to be reconciled with all creation, and to undertake faithfully our responsibility of stewardship of God's gifts. To achieve such reconciliation, we must examine our lives and acknowledge the ways in which we have harmed God's creation through our actions and our failure to act. We need to experience a conversion, a change of heart (p.3).

Summary of Themes from Catholic Teaching

The recurring themes that emerge from the teachings of Pope Paul II and other official Church documents are paralleled and expanded in the wider body of literature that

underpins this study. These themes are integral to thinking and planning for ecologically sustainable education within a Catholic school setting, where Religious Education is an essential component. The themes include:

- Recognition that ecological degradation is happening at an unprecedented rate.

- The urgent necessity, in the light of overwhelming scientific evidence, for humanity to halt its destructive impact on the earth's eco-systems.

- An understanding that this necessity is a moral issue that requires a conversion of mind, heart and ways of living.

- The recognition that peace is intrinsically related to ecological responsibility.

- The recognition that education is key in addressing these issues.

All these themes are either directly or indirectly related to my study of two Catholic schools as they provide a rationale and an imperative for Catholic schools to educate *for* the environment (through awareness raising and environmental action via the curriculum), *with* the environment (through modelling a culture of peace and sustainable living within the school community) and *through* the environment (by offering a spirituality of creation and provision of actual experiences of the natural world).

2.5   Eco-Theology

Contextual Theology

In response to new times and needs, theology does not remain static. Bevans (2002) writes about grounding theology in the context of time and place in order to ensure its

relevance and timeliness. He refers to this as contextual theology. Bevans explains that doing theology contextually means two things: "First, it takes into account the faith experience of the *past* that is recorded in scriptures and kept alive … in tradition" (p.5). Secondly, it takes into account the experience of the present, that is, the *context"* (p.5).

The growing awareness of the ecological crisis has stimulated many theologians to address how faith can make sense of this phenomenon and stimulate an appropriate response from believers and communities of faith. Eco-theology is one manifestation of contextual theology. It has developed as a number of contemporary Catholic theologians, while remaining faithful to the scriptures and to the Catholic tradition, have focused in recent times on the implications for theology of the growing ecological crisis. These theologians also take account of the disciplines of the sciences and social sciences that can inform environmental debate through credible and current research. They offer theological models that are capable of analysing and addressing the ecological crisis from a religious perspective. Their theological reflection has arisen from a unique set of circumstances that has given birth to eco-theology.

An illustration of the development of contextual theology in response to the state of the earth can be found in the work of McDonagh (1987), a Columban missionary Priest, who made a theological response to the devastation of the rainforests in Mindanao and the subsequent loss of life support and human dignity for the T'Boli tribal people with whom he was engaged in ministry.

In the Australian context, the work of Catholic Earthcare Australia (2005) in drafting the Australian Catholic Bishops' document *Climate Change*: *Our Responsibility to Sustain God's Earth* arose from the clearly perceived need for a religious response to the scientific studies related to climate change and its potential impact on Australia. The document examines the science relating to global warming and states that, "a Catholic response to global warming embraces moral and spiritual arguments drawn from its faith tradition" (p. 12).

Scriptural Sources

The Christian scriptures have sometimes been criticised in environmental literature as anthropocentric and unsympathetic to ecological issues and even as the source of exploitative human attitudes and actions towards the natural world, beginning with the well known paper by White (1967). In particular, the injunction from the first account of creation in the Book of Genesis (Gen. 1:26-28) which states,

> Then God said, 'Let us make man (sic) in our image, after our likeness and let them have dominion over the fish of the sea and over the birds of the air, and over the cattle, and over all the earth…..to fill the earth and subdue it.

This text can be interpreted as a licence to justify human devastation of the earth's resources. Eminent scripture scholar Von Rad (1972) provides an exegesis of the passage that clarifies its context and provides justification to challenge this ecological interpretation as not consistent with the original intention of the text. Von Rad (1972) writes that the "commission to rule" (P.60) is a consequence of man (sic) having been made in the image of God and remaining as God's "representative, summoned to maintain and enforce God's dominion over the earth" (p. 60). There is no justification from the text for any form of domination that humankind might exercise separate from

God's own style of dominion and God's own relationship of life-giving and loving creative initiative, expressed by the scriptural author, as Von Rad (1972) points out, in the reiteration of the phrase, "And God saw that it was good" (p. 60) after each phase of creation as related in Genesis Chapter 1.

This theme is taken up and developed further by the scholars discussed in the following section, who have re-examined the scriptures and doctrine, linking them to other disciplines such as the sciences and social sciences. They have explored the ecological implications that can be drawn and articulated the respectful and loving relationship the scriptures indicate that God intended humans to have with the earth, as a gift to sustain human and all life, and with the whole of creation that mirrors the power and beauty of the Creator.

Edwards (1991, 1992, 1995, 2006), introduced earlier in this section, is an example of one such theologian who has worked to establish that there can be credible alignment between scripture, the teachings of the Catholic Church regarding the creative and salvific plans of God, contemporary scientific understanding and the Church's commitment to ecological responsibility.

Scripture as Foundation for Eco-theology

The starting point for eco-theology, as is the case for Papal and other Catholic Church teachings, is a scholarly understanding of the sacred scriptures of both Old and New Testaments. Edwards (2006) identifies a number of key themes that emerge from

scripture that are of particular relevance and importance to his own eco-theological interpretations. They concern:

- The nature of the human person

- Human relationships with other species and all of God's creation

- Christology and The Cosmic Christ

- The final transformation of all things

Edwards (2006), addresses the above themes, giving a clear and comprehensive theological analysis of God's relationship to the human and to the whole of creation as revealed through scripture and interpreted in the light of "scientific cosmology and evolutionary biology" (p.7).

Made in the "Image of God"

As discussed earlier in this section, Genesis 1:27 states that humans are "made in the image of God". Edwards (2006) explains that this likeness to God can, as already referred earlier in the preceding section, be interpreted as a problem, setting up humans "in opposition to other creatures", suggesting that they may have "absolute and unlimited rights over other species" (p.14). However, Edwards (2006) argues that in the Second Letter to the Corinthians 4:4, Paul also speaks of Christ Himself as the "image of the invisible God" and as the one "in whom all things are created" (Corinth. 1:15). Paul further teaches in Romans 8:29 that all humans, through grace, are "conformed to the image of Christ". Christ, as the perfect image of God, in his teaching and life, showed a love for all that God had made. Christ was the model of all human relationships, including relationship with Creation. As Edwards (2006) expresses it:

> Precisely because human beings are made in the image of God, they are called to care for every sparrow that falls to the ground. They are called to love their fellow creatures as God loves them, not in sentimental and anthropomorphic ways, but in a way that respects the distinctiveness and otherness of a kangaroo, an eagle or a whale (p.16).

John Paul 11 (1990) in his New Year's Day Statement expresses a similar theology regarding humans' responsibility towards nature in the light of their dignity as images of God:

> Adam and Eve's call to share in the unfolding of God's plan of creation brought into play those abilities and gifts which distinguish the human being from all other creatures. At the same time, their call established a fixed relationship between mankind (sic) and the rest of creation. Made in the image and likeness of God, Adam and Eve were to have exercised their dominion over the earth (Gen 1:28) with wisdom and love (Parag. 3).

Christology and the Cosmic Christ

Edwards (2006) claims that, "Making the connection between ecological commitment and Jesus of Nazareth is at the centre of a Christian, ecological theology" (p.48) and sets this as a major aim in his own development as a contemporary theologian. He states that it is, "an urgent task for theology to show the interconnection between the living memory of Jesus and the issues that confront the global community" (p.48) and further that only when this happens can ecological action be seen as "radically Christian, as the faithful praxis of Christian discipleship" (p.48).

There are many New Testament examples where Jesus' empathy with the natural world is reflected in his parables. Edwards (2006) notes, "His images come from the whole of life: the beauty of wildflowers, the growth of trees from tiny seeds, crops of grain, bread rising, a woman sweeping a floor looking for what was lost……the birds of the air…(p.51). In the various accounts of the times Jesus spent in silent prayer,

there is characteristically an experience of wilderness. In Mark 1:13, the Gospel recounts that Jesus "stayed in the desert for forty days and was among the wild beasts".

However, these references to Jesus' teaching during his earthly life, while justifiably able to be seen as indications of his affinity with the natural world, are taken to a different level in the light of Jesus' resurrection from death. Edwards (2006) explains that St Paul depicts the risen Jesus as having "a cosmic role" as co-creator of all that is, reflected in Paul's Letter to the Colossians, which echoes the Wisdom literature of the Old Testament. Paul says in Colossians 1:15, "He is the image of the invisible God, the first born of all creation. For in him all things in heaven and on earth were created, things visible and invisible...." This is a theme reiterated by Paul in his Letter to the Romans (8:22) where he sees Christ as the saviour not only of human kind but of creation itself, as it "groans and suffers the pangs of birth".

Jesus Wisdom of God

Edwards' (1995) subtitle to his book *Jesus the Wisdom of God: an Ecological Theology,* encapsulates the aim of his work: to theologise about creation and ecology drawing on the themes of Wisdom in both Old and New Testaments. Edwards argues that Jesus is the Wisdom of God incarnate, the same Wisdom "who had been God's agent of creation at the beginning of time" (p.80) and as Paul puts it "all things were created in, through and for him" (Col 1:16). Moreover, "he is the one who gave coherence to the universe and sustains all things. He is the reflection of God's glory and the exact imprint of God's very being, and he sustains all things by his powerful

word' (Hebrews 1:3). Edwards (1995) argues "if Jesus is the Wisdom of God, then in him, in his limited human words and deeds, in his life, death and resurrection, the mystery of God's purpose and work in creation is revealed" (p.85).

Radical Inclusivity

Edwards (1995) explains how "radical inclusivity" originates in how God "sees" the world, the universe- through the eyes of Jesus, the wise and compassionate one, concerned in a "familial way" for the whole of creation and committed to "radical inclusivity and an option for the poor, the outcast" (p. 85), even to the point of laying down his life. Further, the co-creator of the world, Jesus, God's Wisdom, has died and transformed death through his resurrection, and now "risen from the dead, is identified with Wisdom's work of continuous creation and with the reconciliation of all creatures". He is the Wisdom 'who orders all things well' (Wis: 8). Jesus as the risen Cosmic Christ, with whom humans can be united through Baptism to form one Body, continues the work of creation as the galaxies, stars, and evolutionary processes continue to unfold.

By implication, part of the dignity of Christians who consciously opt to follow Christ (and of all humans as citizens of planet earth and children of the universe) is to cooperate in that unfolding, respecting the processes of the natural world as God's continuing creation and avoiding actions that would sabotage the processes of nature. Edwards (1995) argues that a Wisdom interpretation of creation theology can overcome dualistic thinking that can denigrate the material world and the human body by favouring the spiritual and seeing earth as merely a "launching pad" (p. 86) for a higher, spiritual realm, because Jesus the Wisdom of God is the "hope and reconciliation of all things, whether on earth or in heaven" (Col 1:20).

Edwards (1995) addresses the difficult scientific questions about whether the universe has a future at all, asking, "What does a Christian theology have to say to this?" (p.87). He concludes that on balance, the promise of Christ's resurrection embraces all of existence, not just the human and offers hope that "the work of divine Wisdom…God's gracious act" to transform matter as the evolving new creation will continue.

In the Gospel of John (1:1-4), we hear of Christ, the Word of God, being present at the "beginning" when all things were made and "without whom nothing was made". This is a further reference to the Cosmic Christ, not limited by the confines of thirty plus years of visible human life, but being one with the Creator of the cosmos and part of the unfolding of that cosmos through billions of years of evolution.

Some of the key scriptural passages underpinning eco-theology are summarised in the following table:

Table 2.2 **Selected Scripture References Related to Creation Themes**

Scripture Reference	Topic Introduced
Genesis 1:26-28	Dominion over the Earth
Genesis 1:27	Humans Made in God's Image
Genesis 9	The Covenant between God and Humankind
Leviticus 25:4-7	The Sabbath of the Land
Psalm 19	God's Glory Shown in Creation
Psalm 104	God as Creator
Wisdom Books-*Sirach*	Wisdom present at Creation
Gospels*:* *Mark 1* *John 1*	Jesus Relates to the Creation Jesus as "Word", present at the beginning of Creation

Luke:13	Jesus Compared to the Mother Hen
John 10	Respect for Life
Pauline Literature-	
Colossians 1:13	Jesus as Image of God and Wisdom
Romans 8:22	Christ as Saviour of the Whole of Creation
Corinth. 1:15	Jesus as Image of God and Creator

It is essential that a coherent theology of creation addresses the place of Christ in creation at a level that is deeper than the obvious love Christ had for nature that is easily found in the Gospels and referred to above. Educators preparing Religious Education programs for young people in the Catholic context can be at a loss to explain how their faith tradition deals with the ecological movement, which is so often associated with New Age concepts or linked only with the very obvious themes of scripture such as the Psalms of praise. This may reflect the limitations teachers often have in eco-theological understandings and their basis in the scriptures.

The Goodness of Creation Reflected in Scripture

McDonagh (1976) also revisits the Christian scriptures, acknowledges them as a "veritable gold-mine for the task which I have set myself for this book" (p.120), which is to address the ecological crisis and offer a Christian response to that. He states that:

> The first and foremost message of the Bible is still that the world was created by a loving, personal God (Gen 1:1). The world does not come from an evil spirit at odds with God, and is not itself evil. As God contemplated his creation he saw 'that it was good'. (Gen 1:13, 18, 21, 26). There is no idea of a dichotomy between matter and spirit.

McDonagh draws attention to the Psalms which constantly reiterate this theme of creation as good gift. For example Psalm 19 sings, "The heavens declare the glory of God" (v. 2). Psalm 104 tells how God "set the earth on its foundations" (v. 5), "waters the trees, the cedars of Lebanon which he planted" (v. 16) and "made the moon to mark the seasons" (v. 19). The Book of Sirach (16:26), one of the Wisdom Books, recounts how, "God created his works from the beginning and, as he made them, he assigned to each its place. He arranged them for all time, their beginning and their unfolding. They do not hunger or grow weary and they never cease from their duties".

Stewardship

McDonagh (1976) addresses the term "stewardship" that is included in some Papal teaching and which reoccurs in Biblical contexts with its origins in Genesis. The term has been severely criticised in environmental literature because of its anthropocentric connotations. For example, Unitarian minister, Kathryn Schmitz (2002), speaking to a Christian congregation on Earth Day from an eco-feminist perspective, stated that, although the concept of stewardship is popular, "it is still the case that it is very human-centred, with stewardship being 'in our own best interest'. But what if, what if, a tree has inherent worth, regardless of its 'use' to humankind?" (p. 3).

McDonagh (1986) argues that the Biblical concept of stewardship "pictures humans in harmony with nature, standing before God and ultimately responsible to God for their management of human affairs and creation (p. 122). Hence it is God-centred rather than human-centred. Stewardship includes the covenant made between God, humans and all living creatures in Genesis chapter 9 as well as the Jubilee tradition of

Leviticus chapter 25, whereby the land is to be periodically rested and left fallow in order to recover from cultivation.

This scriptural tradition of stewardship is a vital ecological concept as McDonagh describes it, which makes ecological sense at any period of human history in terms of human responsibility for the care of the earth. It can be interpreted as a rich scriptural contribution to ecological thinking and practice. McDonagh quotes the injunction in Leviticus at length because in it "respect for Yahweh's overlordship, care for the land and concern for the less fortunate are all entwined" (p.123).

> But in the seventh year, the land is to have a rest, a Sabbath for Yahweh. You must not sow your field or prune your vines, or harvest your ungathered corn or gather your grapes from your untrimmed vines. It is to be a year of rest for the land. The Sabbath of the land will itself feed you and your servants, men and women, your hired labourer, your guests and all who live with you. For your cattle too and the animals on your land its produce will serve as food (Leviticus 25:4-7).

I will use "stewardship" in terms of these understandings as elaborated by McDonagh (p.123), since stewardship is a term also found extensively in Catholic social teaching about the environment. It is used by the second case study school, Newman School, as reported in Chapter 5, in their Environmental Education Policy to make the connection between practical initiatives and the Catholic ethos of the school. The term remains a problem for "Deep Ecologists" and some environmentalists.

Christology and Evolution

In *Made from Stardust,* Edwards (1992) draws on developments in physics and astronomy to link the cosmic nature of Christ's origins and mission with a Christian

faith response to the person of Jesus. Edwards presents what he terms "a viable alternative to extreme anthropocentricism" (p.66), so often criticised in Christian theology by non-Christian scholars. Edwards does this by presenting a theology of the human person that puts humans into perspective within creation, presenting what he calls "six dimensions" (p.66) of the human species. These dimensions include: human origins with all creatures in the great primordial fireball, including Jesus Christ who was "made from stardust" like all other humans; forming part of earth's evolution; companionship with other creatures; the unique status of humankind as the self-consciousness of the universe; the invitation for humankind to be in relationship with God.

Edwards (2006) also acknowledges the advantages of what he terms a "bio-centric" approach as opposed to an anthropocentric one that emerged from a model of domination of nature by humans. He sees the importance of deep ecological arguments about the intrinsic value of other creatures, while at the same time repudiating the notion in deep ecology that humans have no "special place" within creation. This, he says, is incompatible with the biblical view of humans as the uniquely made "in the image of God" and having a "unique moral responsibility for other creatures" (p.22). He also rejects the suggestion that "other creatures do not have their own relationship with the living God or their own integrity" (p.25). Here, he is finding some common ground with Deep Ecology, which is introduced later in this chapter.

The connections between theology and nature were understood by some Catholic thinkers and ecologists during the medieval and pre-medieval periods of the growth of

Catholicism. Paul Collins (1995), in exploring the links between the Bible, Christianity and ecology, wrote:

> Among the medieval mystics there was also a much more integrated understanding of the connection between theology and the natural world. Francis of Assisi, Hildegarde of Bingen, Meister Eckhart and many of the medieval and Post-Reformation mystics and saints freed themselves from the prevailing destructive, body-denying, anthropocentric tradition (p. 115).

As early as the second century of Christianity, Collins (1995) argues that Saint Irenaeus was identified as a theologian whose theology "is quite different from the fall-redemption tradition inherited in the West largely though Augustine" (p.112) as he saw the inherent goodness of creation. However, these examples remained as exceptions in mainstream Catholic theology.

Revisiting the Christian Tradition

A New Creation Story

McDonagh (1986) poses the question, "How is the human community going to free itself from the grip of the machine metaphor, which, with its many benefits, has enchanted and blinded us to the negative aspect of technology?" (p. 77). He sees "story" or "myth" as the "basic vehicle of human understanding and meaning" (p. 77) and identifies a sense of urgency in finding a substitute for the Enlightenment story of the earth as a machine to be worked and exploited for production purposes without adverting to its living, holistic life systems, their fragility and their origins in the unfolding of the universe.

McDonagh says that this alternative story needs to be told by the scientists- the astronomers, biologists, geneticists, physicists and others who have explored and pieced together their scientific observations and conclusions and have "shaped and

refined an intelligible and exciting new story of the universe" (p.78). The New Story ,
referred to in the work of Berry (1988), on whom McDonagh relies for his use of the
term, confirms "without a shadow of a doubt" that "the universe does not run on
mechanistic principles. All the processes of nature, from the emergence of life itself to
the cycle of the seasons and the metabolic processes of living forms, are intimately
related" (p.78). Moreover the universe has unfolded during fourteen billion years and
the emergence of humans has been an integral part of this unfolding. We are children
of the universe and cannot see ourselves as separate from the community of life.
McDonagh stresses that there was one essential component of understanding missing
from this scientific discovery of the new story of the universe and that was a spiritual
understanding.

The work of Teilhard De Chardin during the first half of the twentieth century
provided a break-through in terms of relating science and spiritual insight. Teilhard
combined a brilliant career in palaeontology with committed Jesuit priesthood, and his
writings, based on both his extensive scientific field work and his depth of spiritual
awareness, bridged the gap between spiritual and scientific understandings of the
universe. A sample of this synthesis is found in the following beautiful quotation from
Theilhard (1935) in one of his meditations, quoted by Mortire and Aboux (1966) who
noted, "In Theilhard's meditations at this time were already germinating ideas which
he later expressed in *The Phenomenon of Man"* (p. 133).

> So let us bow our heads in tribute to the anxieties and joys of 'trying all and discovering all'.
> The passing wave that we can feel was not formed in ourselves. It comes from far away; it set
> out at the same time as the light from the first stars. It reaches us after creating everything on
> the way. The spirit of research and conquest is the permanent soul of evolution.

This deeply reflective, spiritual way of engaging in the scientific processes of discovery and the approaches to evolutionary science, needs to influence pedagogy and curriculum within a truly ecologically committed school community. It is reflected to some extent in reporting the commitment of both case study schools described in Chapter 4 and 5 to opportunities for students for meditation within and about the natural world.

McDonagh (1986) acknowledges Teilhard's ground-breaking work and summarises his synthesis of the universe story as follows.

> From the first moment of the universe twenty billion years ago, every particle of matter carried within itself the seeds of everything that was to emerge in later unfoldings, including human consciousness. Any telling of the universe story which fails to speak of the 'within' of things is radically defective and will end in a dualism that human beings will find alienating (p.79).

The Passionist priest and social scientist, Thomas Berry, together with physicist Brian Swimme (1992) also drew on Theilhard's theories of the universe and the work of the scientific community to detail the unfolding of the universe from the primordial fireball to the present and the dawning of what Berry and Swimme term "the Ecozoic era" (p.241). Berry (1992) argues in *The Universe Story* that science and history have not been able to adequately describe or understand the unfolding of the universe, nor the dominating and devastating role humans have played in the destruction of earth's eco-systems in the final few centuries of the billions of years of earth's evolution. Hence we need a "New Story"- *The Universe Story*. This story includes a mythic and spiritual dimension that science alone cannot teach and it is this sense of the sacredness of earth that will be needed to usher in what Berry calls the "Ecozoic" era,

as opposed to the "Technozoic" era, with its commitment to constant "progress" (p.249), hastening the devastation of the natural world through unbridled use of technology. Berry teaches that humans are to live in harmony with the Earth Community and foster its health, through an awareness of its sacredness, and the development of a "new mode of consciousness" (p.251), the Ecozoic, to replace the mechanistic ideology that caused the earth's devastation".

Berry (1988) had been a leader in promoting the concept of the "Earth Community" through his work, *The Dream of the Earth.* In a later book, *The Great Work: Our Way into the Future*, Berry (1999) clearly challenges the role educational institutions have in changing the metaphors that have guided humans in the exploitation of the earth.

> Our educational institutions need to see their purpose, not as training personnel for exploiting the Earth, but as guiding students towards an intimate relationship with the Earth (p. x).

The "Great Work" of our time, Berry maintains, is to raise human consciousness to see itself in harmony with the whole creation as an integral part of the Earth Community, not to lord it over the other life forms, but to be in respectful interdependence with them.

As the work of Edwards, Berry, Swimme and McDonagh cited above demonstrates, a new theology and scriptural interpretation are needed and are being developed, in dialogue with many contributing disciplines, to take account of the scientific and spiritual understandings we now have regarding the origins of the universe.

Leading Catholic scripture scholar, Passionist Father Donald Senior, Professor of New Testament Studies at Catholic Theological Union Chicago, was invited to respond to fellow Passionist Thomas Berry's critique of Christian scripture, which Berry sees as partially responsible for humans' exploitation of the earth. Senior is featured in a collection of commentaries on Berry's work, edited by Lonergan and Richards (1987) and reiterates the importance of Christian scripture as an ally in addressing the ecological crisis. He states that he believes Berry overstates the ways in which the scriptures can be seen to support exploitation while at the same time underestimating their potential to name and challenge human greed and domination and inspire respect and love for the created world as a gift from God. While Senior identifies the strength of Berry's scholarly contribution, especially his attempts to describe the "New Story", as a powerful myth that can inspire economic reform and ecological responsibility as a call to conversion, Senior sees scripture as an essential component and ally in understanding the so-called "New Story" and its powerful implications for human conversion. He writes:

> If Berry's analysis of the human plight is correct and if, in fact, humanity needs to so thoroughly revise and expand its vision (or create a new story) then what is being called for is 'conversion'- in the most serious sense of that word. However, for Christians at least, there will be little possibility for such conversion if that means a repudiation of the biblical story. Only in continuity with our sacred story can the energy be found to effect radical change in perspective, and the foundation of our Judaeo-Christian story is biblical (p.44).

McDonagh (1976) also seeks in *To Care for the Earth* to document a practical set of responses to aspects of the "threat to life on earth" (p. 17) in the light of the scriptures, the Christian tradition and the "New Story" (p.77) of creation which he explored drawing on Berry's (1988) work. McDonagh went on to develop links between the

scientific history of the cosmos unfolding and the indigenous stories of the T'Boli people in the southern Philippines. He joined with them to create an ecological project that worked to restore the local ecological systems that had been devastated by logging and plantations and to honour the Indigenous cultural traditions that had preserved the ecological balance for thousands of years.

McDonagh (1986) explored ecological devastation in his native Ireland, critiquing the abuses of the industrial economy. In a later publication, *The Greening of the Church,* McDonagh (1990) expanded his theological interpretation to shed light on major environmental challenges such as population growth and the plunder of old growth forests, pointing towards possible Catholic Church responses to these issues. McDonagh models an action/research way of responding to the ecological crisis, which has been characteristic of some contemporary Christian missionaries, including the Columban Missionaries to whom McDonagh belongs. They have not only studied the issues but have been actively involved in leading collaborative models for sustainability within the communities where they minister.

The scholarly works that have been introduced in this section can help guide understandings about ecological conversion and offer varying levels of critique of and commitment to mainstream Catholic understandings. Catholic school leaders, in the development of curriculum and learning programs for students, need the support of credible scholarship, including that of eco-theologians, to inform their thinking and professional development as educators for sustainability. They also need the support of organisations like Catholic Earthcare Australia that are based on sound eco-theology

and provide resources that take account of both the latest scientific information and the dimension of faith.

Young people can pose many questions that challenge the traditional beliefs of their parents and teachers, including the integrity of the scriptures, in a search for answers to the critical ecological and moral questions that arise in educational contexts. The strength of commitment to scripture of scholars like Senior, McDonagh, Berry and Edwards introduced in the previous section, coupled with their openness to evolution and progressive scientific developments can provide confidence and scholarship for Catholic educators in approaching their students' quest for knowledge and understanding.

Summary of Themes from Eco-Theology

Eco-theologians are able to address the accusation that Catholic doctrine is out of alignment with contemporary science and anthropology, and that it continues to present a view of humanity that supports the exploitation of the earth.

The important themes that emerge from eco-theology are foundational to the infusion of an ecological perspective into religious education, science and the social sciences. These themes include:

- An interpretation of the Creation story of Genesis that is consistent with scientific evolutionary theory.

- An understanding that Christian morality includes responsibility for the environment.

- A spiritual response of awe and wonder in relating to the created world as the gift of God.

- An understanding that humans are called to a stance of stewardship, not domination, in relation to nature.

- Interpretation of scripture from an ecological perspective to critique a paradigm of domination over nature and support ecological awareness and conversion.

2.6   Eco-Feminist Theology

There is an inherent difficulty for many scholars and environmentalists in reliance on male authors and thinkers to address profound ecological questions. The domination of the earth has so often occurred within patriarchal systems that also dominated and subjugated women. Catholic eco-feminist theologian, Radford Reuther (1992), makes the connection between the construction of a male, monotheistic God and the domination of men over women in a patriarchal religious system.

> Domination of women has provided a key link, both socially and symbolically, to the domination of the earth, hence the tendency in patriarchal cultures to link women with earth, matter, and nature, while identifying males with sky, intellect, and transcendent spirit (p. 3)

Hence, it is appropriate to turn to literature from feminism, in particular eco-feminism, and its close ally, deep ecology in a search for key ecological concepts and themes.

Deep Ecology

"Deep ecology" is a term that is used to describe radical understandings that link the physical and social sciences in an attempt to explain human exploitation of nature. The

Norwegian philosopher and mountaineer, Arne Naess, was the first to coin the phrase "Deep Ecology" (1973). He believed in the inherent worth of all beings, and identified as shallow an ecology which saw humans as inherently superior and hence countenanced overlordship of nature. Drengson (2005) has edited a ten volume collection of the works of Naess. Commenting on the work of Naess on the Foundation for Deep Ecology website, Drengson observes that,

> The distinguishing and original characteristics of the deep ecology movement were its recognition of the inherent value of all living beings and the use of this view in shaping environmental policies. Those who work for social changes based on this recognition are motivated by love of nature as well as for humans. They recognize that we cannot go on with industrialism's "business as usual." Without changes in basic values and practices, we will destroy the diversity and beauty of the world, and its ability to support diverse human cultures.

Radford Reuther (1992) explains how "deep ecology" took an understanding of ecology, which had sprung from "the biological science of natural environmental communities" to "another level" (p. 1).

> It examined the symbolic, psychological and ethical patterns of destructive behaviour of humans with nature. It particularly saw Western culture, sanctified in Christianity, as a major cause of this destructive culture. It explored ways to create a new, more holistic consciousness and culture (p.2).

Berry (1988), in discussing the integrity of nature, introduces a "biocentric" view of the earth community and humans as part of that community. He claims that "the strongest academic presentation of the biocentric view is found in the Deep Ecology movement... concerned with a more integral life orientation" (p.61).

Deep ecological understandings challenge anthropocentric tendencies that consider humans as supreme over other species. Such understandings remind educators that

providing opportunities for students to understand the interconnectedness of all life forms within earth's ecology and to practise respect and love for life in all its forms is a vital part of education for sustainable futures.

Eco-feminism

Eco-feminism shares some of the perspectives of deep ecology. Radford Reuther (1992) explains that "eco-feminism brings together these two explorations of ecology and feminism, in their full or deep forms and explores how male domination of women and domination of nature are interconnected, both in cultural ideology and social structures" (p.2).

Plant (1989), a philosopher, explores the concept of eco-feminism, which has been the pursuit of feminist scholars seeking to understand the links between earth domination and the domination of women within patriarchal traditions. King (1989), also working from the philosophical perspective, defines eco-feminism as "an understanding of the connections between the domination of human persons and the domination of nature" (p. 165).

In *Gaia and God: An Eco-Feminist Theology of Earth Healing,* Radford Reuther uses the lenses of eco-feminism and ecology, two secular disciplines, to "evaluate the heritage of Western Christian culture" (p.1) and rediscover the "heritage of transformative, biophilic relationships" that are a "precious legacy that needs to be separated from the toxic waste of sacralised domination" (p.3).

This critique of the Christian faith tradition is essential if the Catholic Church's message of ecological conversion is to be credible, especially for the present generation of young people seeking an education in the Catholic school context. As Radford Reuther points out, all too often Western Christian traditions were perceived to "sacralize patriarchal hierarchy over women, workers and the earth" (p. 3). She links eco-feminism and theology, arguing that patriarchy and its accompanying dualisms have dominated cultures since antiquity, and are directly responsible for the developmental paradigms that have devastated earth's environments in the name of "Progress". However, she argues that the Western Christian traditions that have been so closely linked to patriarchy, also "struggled with what they perceived to be injustice and sin and sought to create just and loving relations between people in their relation to the earth and the divine" (p. 3). She advocates a new paradigm, that takes account of both Gaia (Earth as living organism) and God, as a basis for the formation of inclusive communities of healing that can live in harmony with the environment because "we need both of these holy voices" (p. 255).

Any serious study of ecological devastation must include investigation of the root causes of human ecological domination if there is to be genuine conversion of attitudes and ways of living. There is also a need for alternative models for living that engender hope and show possibility.

It is an assumption within my research that Catholic school communities can become such inclusive communities of healing, educating towards living in harmony with both the human and natural environment.

New Metaphors for God

Feminist theologians also offer a critique of the traditional metaphors that have been used within the Christian tradition to describe God. McFague (1987) claims that "the primary metaphors in the tradition are hierarchical, imperialistic, and dualistic, stressing the distance between God and the world" (p. 19). Such metaphors as king, ruler, lord, master, and governor are patriarchal in origin, often associated with the phrase "Almighty Father" (p.19) and do not allow for reciprocity of responsibility for the world between God and all humans. These metaphors, argues McFague, find expression in models of relationship that have fostered the domination of nature. She explores alternative metaphors for God such as Mother, Lover and Friend, and argues that these models foster inclusive, mutual, healing and creative ecological models for Christian faith.

The notion of God as being expressed in other than traditional masculine metaphorical terms is not new within the Christian tradition. McFague acknowledges Julian of Norwich's theology of the motherhood of God in the fourteenth century. "Julian discovered in the depths of God a reason for attributing motherhood to God: 'We owe our being to him, and this is the essence of motherhood'" (p. 115).

McFague (1987) also draws on the Wisdom tradition within the Hebrew scriptures, where Sophia "as the immanent presence of God in all things…..is involved in

creation" (p. 114), referred to as feminine and is "especially concerned with the poor as the compassionate nurturer of those who are hungry and suffer injustice" (p. 115).

Edwards (2006) acknowledges the work of Elizabeth Johnson and others who have developed a Christology of Jesus himself as the Wisdom of God and prophet of Sophia. He says, "This has the effect of breaking the strangle-hold of androcentric thinking and points to the God-with-us in Jesus as beyond male and female, but inclusive of both" (p. 57). He goes on to say that in his opinion, "this opens up a viable and life-giving wisdom Christology that is both feminist and ecological (p. 77). Jesus' reference to himself, in relation to Jerusalem, as longing to "bring together your children as the mother hen gathers her chickens under her wing" (Luke 13:34) and the nurturing qualities of Jesus as he feeds and cares for the hungry and the lost are obvious examples of this.

Matthew Fox (1983) in *Original Blessing*, explored the elements of creation spirituality, and writes about the "birthing of the cosmos" (p.175) as the ultimate creative process of God, quoting God saying of God's self in Isaiah (42:14), "I (Yahweh) groan like a woman in labour, I suffocate, I stifle". Fox (1983) also cites in this context Isaiah 49, where God is portrayed by the sacred writer as asking: "Does a woman forget her baby at the breast, or fail to cherish the child of her womb? Even if these forget, I will never forget you" (49:I). In Isaiah 66:12, "Yahweh says…Like a son comforted by his mother, will I comfort you" (p. 220). Meister Eckhart, the thirteenth century spiritual theologian, is quoted by Fox as asking, "What does God do all day? God gives birth. From all eternity God lies on a maternity bed giving birth" (p. 220). And Julian of Norwich is quoted in the same section as saying, "God is the true Father and Mother of Nature……God almighty is our loving Father, and God of

all wisdom is our loving Mother" (p.221). The implications of these metaphors for God in terms of ecological awareness and responsibility are spelled out by Fox (1983) in a reference to the contribution of feminism.

> The feminist movement and with it the creation-centred spiritual tradition has celebrated and retrieved the nonliteral meaning of motherhood. Adrienne Rich, who defines feminism as 'developing the nurturing qualities of women and of men' has, like Eckhart, awakened our consciousness to the question, What is nurturing? What would it mean to live in a nurturing society, one where even men nurtured self, one another and others? Surely it would mean from a theological point of view the recovery of the tradition of the God Mother (p. 223).

Such a theological and spiritual understanding of nurturing can enrich the concept of "well-being" that is so integral to curriculum documents such as the Essential Learnings Framework alluded to later in this chapter. If God is imaged as the nurturer par excellence, a Catholic school community is called to reflect and encourage nurturing of the whole of life as an essential learning for lifelong well-being.

The World as the Body of God

In attempting to image God in a way that is helpful in an age of ecological crisis, an age greatly in need of religious inspiration, Sallie McFague (1993) in *The Body of God: An ecological theology,* engages in a heuristic theologising that attempts to find a metaphor for God that can replace the dominating metaphors such as king and lord which influenced Judeo-Christian interpretations of God for millennia. McFague (1990) summarised her new theological model in an earlier essay *Imaging a Theology of Nature: The World as the Body of God.* She explains that the knowledge humans have of the means to destroy life through nuclear knowledge gives us the power to

"destroy ourselves and much of the rest of life" (p. 201). This point of crisis forces humans to contemplate the possible "death of birth" (p.201). In response to these stark possibilities, McFague argues that a holistic theology of nature is urgently required "that will help bring about a theocentric, life-centred, cosmocentric sensibility in place of our anthropocentric one" (p. 203). She asks the question, "How would we act differently if we imagined the world to be the Body of God rather than considering it be, as tradition has, the realm of the Almighty King? (p. 203). Her answer to her own question is to speculate, to test the idea of the world (including the entire cosmos) as the body of God, knowing of course, that this is a metaphor for God, as are all names or concepts used in relation to God. The implications of suggesting this metaphor would be, she argues, that "The body of God would be nothing less than all that is (p. 217)", it would be "God's self-expression" and God would be seen, not as removed from nature, but to be in all things and all things in God (p. 217). "There would be no way we could any longer see God as worldless or the world as Godless" (p. 217). Contemplation of every smallest manifestation of nature, McFague argues, "a child's first steps, the smell of rain on a spring day, whatever" (p. 219) becomes a form of prayer for the world as the body of God that we, as lovers and friends of the world, are summoned to practise" (p. 219).

This model presents a theological counterpart to Lovelock's Gaia hypothesis, described by McDonagh (1976) in the following terms:

> This theory postulates that the entire chain of living beings, from simple bacteria to human beings, are interconnected and can be viewed as a single entity. This living entity possesses powers beyond those if its constitutive parts. Like the human body which can control temperature through homeostatic movements, this entity, which he (Lovelock) calls Gaia-

recalling the earth personified as a goddess in Greek mythology- has mechanisms which optimise the conditions suitable for life (p. 81).

If learning about and for the environment is to make a real difference to the lives of learners and their future relationship with our planet, a coherent vision of the sacredness of nature is imperative to inform the development of the curricula they study in Religious Education, Science and the Social Sciences.

Summary of Themes from Eco-feminist Theology

Some implications from eco-feminist theology for the development of ecological responsibility include:

- Language chosen to describe God can include feminine terms and concepts and can powerfully influence how humans view creation and relate to the created world.

- The paradigm of domination over nature and women that has characterised most of human history needs to be brought into question.

- Humans form part of the earth community and do not stand apart from the natural world that nourishes and sustains all of life.

While theology as a discipline can form the concepts and understandings that are foundational to Catholic beliefs about ecological conversion and environmental responsibility, these rational understandings need to find practical expression and underpin a holistic way of life, both at the public and personal level, and be sustained

by an ecological spirituality. Such spirituality, often referred to as "creation spirituality", is fundamental to fostering "ecological conversion" and is explored in the following section.

2.7   Creation Spirituality

Defining Spirituality

Sandra Schneiders (1989), Catholic feminist scripture scholar, describes spirituality as:

> a project of life-integration, which means that it is holistic, involving body and spirit, emotions and thought, activity and passivity, social and individual aspects of life. It is an effort to bring all of life together in an integrated synthesis of ongoing growth and development (p.5).

In Schneiders' perspective (1989), spirituality serves to integrate our conceptual understandings, drawing on all the attributes of mind, body and spirit to foster positive health and development. It has a social dimension and encompasses all aspects of life, including relationships with the natural world. The "effort" referred to by Schneiders to bring all of life together includes the natural world and our relationship with it.

Spirituality and Environmental Ethics

Spirituality can, and often does, remain at the level of the personal, without impacting on appropriate action and lifestyle for global sustainable futures. In the Tasmanian Department of Education *Essential Learnings Framework* (p.6), there is an attempt to integrate the elements of human learning and development, including spiritual and ethical development, to facilitate human "wellbeing", including the wellbeing of others and of the planet. The framework includes a Key Element, "Maintaining

wellbeing", and its accompanying student outcome reads, "Understands the interdependence of the physical, mental, emotional, social and spiritual dimensions of wellbeing and knows how to make wise choices and contribute positively to the overall wellbeing of self and others". Closely linked to this Key Element is the Key Element "Being ethical" (p.6). This involves making ethical judgments based on ethical principles. The theory is that such Key Elements can lead a person, through formal education, to become a responsible global citizen and a participant in forming a sustainable future. The mention of the "spiritual" dimension quoted above is significant. Knowing ethical principles is important, but living and sustaining those principles involves what Schneiders (1989), has described- a spirituality that fosters an integrated lifestyle, a synthesis within a person's life.

Catholic ethicist Neil Brown (2004), writing about conscience and the ecological crisis, outlines how difficult it is to "alter the code" (p.14) of conscience, laid down through a lifetime of experience that has shaped the view we have of the world. Our belief system is crucial to formation of conscience, and Brown (2004) identifies some flaws in the traditional "distortions" (p.17) of Judeo-Christian belief that have supported the development of an ethic that dominates and exploits creation. Humans need to be "reconciled" (p.18), as Paul writes in the Letter to the Colossians in the New Testament, to the whole of creation and undergo a change of heart to "recapture a sense of the immense diversity, interconnectedness, organic integrity, and beauty of the whole of creation as expressive of God's immensity, goodness and full purpose as creator" (p.17).

Brown (2004) argues that change of heart, and this can include what Pope John Paul II refers to as "ecological conversion", requires "new traits, such as attentiveness, listening, appreciation, recognition, respect, hope, contemplation, love and delight" (p. 18). These are qualities associated with the practice of spirituality. Catholic schools claim to educate students towards spiritual development.

Fletcher (2004) describes what he terms "Heart Spirituality" (p. 3) and identifies the heart as a primordial symbol of inwardness and empathy, associated with the mystical life of reflection and spirit. He acknowledges the writings of Aboriginal artist and contemplative, Miriam Rose Ungunmerr, who recommends that "sitting quietly in the bush offers a contemplative space attractive to the heart", not only for her people, but "for all Australians" (p. 6). She uses a tribal word "Dadirri" to describe the unique gift her people have to give to Australia, that is, the ability to engage in "deep listening" (p.6) to the created world.

Matthew Fox, former Catholic, now Anglican writer, has published several works that address the ecological crisis and the need for a spirituality of creation. In *Original Blessing,* Fox (1983*)* contests traditional interpretations of science and religion that support the exploitation of the earth. He develops the concept of the "Via Creativa", the way of creation spirituality, a way of living that can create a new consciousness and model the New Creation (p.178). He holds that, "educational forms must themselves be altered to make room for the spiritual renewal that a creation spirituality can begin", and furthermore asks, "couldn't Catholic school systems take the lead in reconnecting science, mysticism, art and social transformation?" (p. 24).

Centres of Ecological Spirituality

Creation spirituality is being fostered through the initiatives of many Catholic religious orders who have founded centres of creation spirituality. One example of this is the Edmund Rice Centre for Ecology and Spirituality at Glenburn in Victoria, which offers courses in creation spirituality. The Centre's website (2004) states that:

> Our western spirituality needs to expand to include lifestyle changes and sensitivities to creation, learning from the indigenous traditions and reviving much of the Celtic tradition of many white Australians. There is a notion of a holistic spirituality which recognises and celebrates the Earth, its life forms and its seasons, the wisdom of women and of the body and the presence of the divine at all levels of nature.

A body of ecumenical literature has emerged to encourage creation spirituality for adults. For example, the Social Justice Sunday resource, *Sustaining Creation* (2002) was jointly produced through a partnership with the Australian Catholic Social Justice Council, the Uniting Church's National Board of Social Responsibility and the Anglican Social Responsibilities Network. As a further example, the Catholic Archdiocese of Brisbane (2003) based its adult Lenten program *Attending to the Sacred* on environmental themes. These programs were intended to assist people to develop their spiritual attentiveness to God's creation.

Summary of Creation Spirituality Themes

The themes that emerge from a study of literature exploring creation spirituality include:

- Understanding spirituality as attentiveness, deep listening and contemplation.

- An awareness that organized religion, to remain relevant, needs to recognize the importance of a spirituality that honors the created world and takes account of the ecological crisis.

- Creation spirituality can empower the human person to live a relationship with the earth that is based on love and respect rather than domination.

- Spiritual formation is a significant factor in educating towards ecological conversion.

The development of a Creation spirituality suited to the present time is a work in progress. A relevant spirituality is needed to continue to energize commitment to ecological sustainability and is essential to inspire and motivate the development of a consciousness that is attuned to ecological responsibility. It is significant in bringing about the life changes that are associated with ecological conversion.

Creation spirituality is crucial in staff and student formation within the Catholic school setting if ecological conversion is to occur and the total life of the school is to be inspired by ecological understandings.

I intend to link these understandings about the importance of spirituality with the development in Catholic schools of Education for Sustainability. I believe this link could extend to school education generally, especially in the light of the inclusion of the spiritual dimension as an essential aspect of student development and its links to ethical living for sustainable futures within state curriculum documents such *Essential Learnings* in Tasmania.

The next section refers to literature that documents the development of Education for Sustainability (EfS) as an acceptable and widely used term and its earlier counterpart terms used within the environmental movement.

2.8   Education for Sustainability

Historical Developments

Prior to the emergence of the environmental education movement in the 1970's, there were a number of educational initiatives that centred on "Nature study". For example, the American Nature Study Society (ANSS) was founded in 1908 and became the leading organization serving and strengthening the Nature Study movement in the United States of America. For nearly a century, ANSS served the professional needs of countless teachers with workshops, publications, field trips, and conferences and facilitated field trips for students. The website describes how this organization acted historically and continues into the present to support schools:

> The Nature Study movement pioneered student-centered learning, using hands-on teaching materials and field experiences. These interactive methods are now recognized as essential to effective teaching. Nature Study builds bridges between the natural sciences, social sciences, and humanities, and grounds them in real-world experiences (2006).

Australia also had its nature societies and nature studies. Robin (2002), working within the Centre for Resource and Environmental Studies (CERES) at the Australian National University, explored the origins of Australia's special nature days, Wattle Day, Bird Day and Arbor Day, and explained how these days became the focus for civic pride and nature studies for children. They were supported and resourced by the

Gould League (re-named Gould Group in 2006), which was the most influential of the nature societies founded in the early 20th century in terms of support from the various education departments. The Australian Museum website states: "Gould League members were recruited via schools and received membership certificates and badges. Members were encouraged to enter competitions in bird mimicry, write stories and poems and attend 'bird-day concerts'".

Nature Study became a part of state syllabus documents and was taught throughout the states. It was not until the 1970's that what was termed 'environmental education' became a part of school curricula. Its development is described in the following section.

Environmental Education

Prior to the 1970's, Nature Study had mainly centered on studying nature for its own sake or as a matter of national pride through events such as Wattle Day. It was during the 1970's with the publication of *Limits to Growth,* mentioned earlier in this chapter, and the various United Nations environmental conferences and their published agendas, conventions and conference recommendations, that environmental education developed as a direct response to the growing awareness of environmental devastation.

Influence of the United Nations

Environmental Principle 19 of the Stockholm Declaration (1972) made a seminal statement regarding environmental education. "Education in environmental matters …….is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and

improving the environment in its full human dimension". Lang (1999), points out that the 1976 UNESCO publication *The Belgrade Charter Framework for Environmental Education* "outlined the elements of environmental education that would assist schools to act as change agents to modify human behavior through a change of attitudes and values" (p. 57). There was a new emphasis on change of human behavior towards the environment.

The United Nations established World Environment Day in 1972 and, through the *Tbilisi Declaration* of UNESCO in 1977 laid down principles for environmental education. In 1992, the United Nations Conference on Environment and Development (UNCED) published the global document, *Agenda 21*. Chapter 36 of this document, entitled "Promoting Education, Awareness and Training", called on nations to integrate environmental education throughout all levels and sectors of society. It states:

> Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential. Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making. To be effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication (36.3).

Australian Developments

A useful summary history of the development of environmental education in Australia was published by the NSW Department of Education and Training Curriculum

Support Directorate on its website (2001). It noted that in 1979, the Australian Association of Environmental Education (AAEE) was formed and by 1980, the first Environmental Education Unit was established by the Commonwealth Department of Home Affairs and the Environment and courses in environmental awareness were offered around Australia. It noted that in 1987 the Curriculum Development Centre (since disbanded) published a national curriculum document in support of Environmental Education. Further, the website identified that in 1999, the federal government published *Today Shapes Tomorrow*, a discussion paper on Environmental Education and that in the same year, the Ministerial Council on Education, Employment, Training and Youth Affairs, set out environmental education as one of its major educational goals for all Australian students.

Environmental Education in New South Wales

Initiatives in the state of New South Wales were of particular interest to me as I was working there most of the time when this thesis was being prepared. It provides a sample of what state education systems had been doing in the area.

The website of the Department of Education and Training New South Wales outlines the history of the development of environmental education in New South Wales, which began with the Gould League in 1910. In 1972, the first Field Studies Centre in the state was opened. In 1977, an Environmental Education Officer was appointed and progressively, the Department of Education and The Gould League worked in collaboration. In 1999, the Environment Education Centers were established for departmental schools and the NSW *Environment Education Policy for Schools*

released to schools in 2001. Since then, the Sustainable Schools Project has been piloted in approximately 200 schools, most of them government schools, with a small representation from Catholic schools.

Catholic Church Documents on Education

There are no counterpart documents that this research has been able to discover, to mandate environmental education in Catholic schools during the period when documents were being written and environmental education initiatives were evolving within public education as a response to global movements towards environmental education. However, major Church documents such as *The Catholic School* (1977), and *The Religious Dimension of Education in a Catholic School* (1988) were seminal in the writing of various curriculum-related programs that did contain a strong ecological focus. They show that student learning and cultural development cannot be divorced from faith. For example *The Religious Dimension of Educating in a Catholic School* states:

> Everyone should work together, each one developing his or her own subject area with professional competence, but sensitive to those opportunities in which they can help students to see beyond the limited horizon of human reality. In a Catholic school, and analogously in every school, God cannot be the Great Absent One or the unwelcome intruder. The Creator does not put obstacles in the path of someone trying to learn more about the universe he (sic) created, a universe which is given new significance when seen with the eyes of faith (Parag. 51).

Examples can be found in Religious Education curricula and also in the values integration document *A Sense of the Sacred* (1995), produced by the Catholic Education Office Sydney to resource secondary schools in the integration of Catholic values within the total curriculum. These programs included respect and love for the

sacred gift of the creation as a key value to be developed for students. Creation in this context is defined by Downey (1993) as "the movement from non-existence into existence through the creative action of God" (p. 238). Christians believe that the natural world is sacred since it has been created by God.

Official Church teachings on education, while not specifically mentioning environmental education, encouraged a pedagogy that could empower students to actively engage in their learning, and to develop skills in recognizing and responding appropriately to the implications of the current ecological crisis. The Catholic Church, while producing significant documentation regarding education during the past fifty years, has produced very little directly related to environmental education. The awareness upon which such a commitment could build was not evident prior to the time of Pope John Paul II and his gradual development of a body of teachings on ecology, explored earlier in this chapter. I believe this is crucial in explaining the paucity of good pedagogy in official Catholic Church teachings about Education for Sustainability, as the documents are largely based on principles of human dignity and are anthropocentric in focus. Hence the need to extrapolate from general Catholic educational principles the implication for education that includes ecological responsibility.

It is possible, for example, to extrapolate from the Vatican Congregation for the Clergy document, *General Directory for Catechesis* (1997), sound pedagogical principles and philosophical understandings that aim to foster empathy, compassion and wise judgment, values consistent with ecological sensitivity. There are no explicit references to environmental education in this document. However, it opens with the

ecological parable of the Sower in reference to planting the seeds of God's word through catechesis, and goes on to identify the "field in which the seed is sown" (p. 14), namely the contemporary world.

The document goes on to critique the purely scientific methodology that has shaped modernity and promotes the advantage of the *affective* domain in human decision-making in a post-modern society. It states:

> The scientific mentality…., profoundly modifies "culture and ways of thinking", with consequent human and religious repercussions. Modern man (sic) is deeply influenced by this scientific and experimental method. Nevertheless, there is today a growing realization that such a mentality is incapable of explaining everything. Scientists themselves acknowledge that the rigour of experimental method must be complemented by some other method of knowing, if a profound understanding of the human being is ever to be attained. A rationalism which does not dichotomise man (sic) but which integrates his affective dimension, unifies him and gives fuller meaning to his life is thus indispensable (p. 20).

The next section explores examples of pioneering pedagogies that have been developed within a non-religious context, in direct response to the ecological crisis. These pedagogies underpin Education for Sustainability and have informed practical educational projects in the United States, the United Kingdom and Australia that aim to educate towards wholeness and ecologically sustainable futures. They can provide important models for schools working towards these understandings in the specifically Catholic context.

2.9   Pedagogies to Support Education for Sustainable Futures

Defining Curriculum and Pedagogy

In recent years within education, there has been intense interest in defining and describing suitable pedagogy and designing curricula to meet the overall learning needs of students. Some models are described in the following section.

It is useful for the purposes of this research to first define what is meant in an educational context by the terms "curriculum" and "pedagogy". Print (1993) describes curriculum as:

> ...all the planned learning opportunities offered by the organisation to learners and the experiences learners encounter when the curriculum is implemented. This includes those activities that educators have devised for learners which are invariably represented in the form of a written document.

The Literate Futures Project of the Queensland Department of Education, Training and the Arts defines pedagogy as the "function, work or art of a teacher; teaching, instruction", (drawing on the Macquarie Concise Dictionary, 3rd Edition, 1998).

Print (1993) also distinguishes between "syllabus", a list of content areas to be covered in teaching, and curriculum, a more holistic term. All three terms have a bearing on education for sustainable development.

In the Australian context, two examples of pedagogical models that have guided schools in the preparation of classroom programs have been *Productive Pedagogies* (1999) from the Department of Education Training and the Arts, Queensland Government and *Quality Teaching in New South Wales Schools* from the NSW Department of Education and Training Curriculum Support Directorate. The concept

of "Productive Pedagogy" has also become commonly used in New South Wales schools. An article of the same title "Productive Pedagogy" featured in *Inform* (March 2002), the NSW Department of Education and Training magazine for schools, offers the following (Table 2.2) which summarises the four key dimensions of learning and their accompanying elements that are to be included in effective planning for classroom strategies.

Table 2.3 *Summary of Productive Pedagogy*

Intellectual Quality	Relevance (Connectedness)
- Higher order thinking - Deep knowledge - Deep understanding - Substantive conversation - Knowledge as problematic - Metalanguage	- Connectedness to the world - Problem-based curriculum - Knowledge integration - Background knowledge
Social Support	**Recognition of difference**
- Student control - Student support - Engagement - Self-regulation - Explicit criteria	- Cultural knowledge - Inclusivity - Narrative - Group identity - Citizenship

These aspects of pedagogy are not new concepts but rather a revisiting of sound teaching theory and practice utilised by successful teachers in any setting. They apply to planning programs for teaching towards ecological sustainability just as they apply to any other learning context. Most importantly, through the identification of connectedness to the world, they indicate that ecological sustainability needs to be a part of the overall learning students acquire rather than an add-on.

The extent to which the two case study schools demonstrate elements of productive pedagogy within their curriculum implementation in relation to Education for Sustainability is described and assessed in Chapters 4, 5 and 6.

Although EfS is implicit in productive pedagogies, some specific interpretations of pedagogy and development of programs to address learning for sustainability have been developed around the world. A number of these programs are introduced in the following section.

Eco-literacy

Orr (1992) writes about a new understanding of literacy within the education process. For him, all education is environmental education, and he believes students need to develop what he terms "ecological literacy" in order to understand their place *within*, not apart from, the natural world. In Orr's (1992) framework, interdisciplinary teaching and learning will equip students to develop an integrated view of the world and learn to live sustainably in harmony with the environment. There are several elements to ecological literacy, including recognition that all education can be environmental education if an interdisciplinary approach is used. Students need to understand how the systems of the natural world operate and how humans relate to and impact on those systems to make the necessary connections. There is need for dialogue and appropriate pacing of knowledge acquisition so that students can form meaning and integrate their learning. Orr (1992) believes that immersion in the natural world through field experience is an indispensable element in sound education for ecological sustainability.

Orr's educational ideas are reflected on the website of the *Eco-literacy Centre* in California, founded by Fritjof Capra in 1995. The Centre coordinates practical ecological projects within schools throughout California. Capra in his Schumacher Lecture (Liverpool 1998), cited on the website, claims:

> The great challenge of our time is to build and nurture sustainable communities that are designed in such a way that their ways of life, businesses, economies, physical structures, and technologies do not interfere with nature's inherent ability to sustain life. The first step in this endeavour is to understand the principles of organization that ecosystems have developed to sustain the web of life. This understanding is what we call ecological literacy (p.1).

The Ecoliteracy Centre aims to educate within a community that shares ecological sensitivity and environmental commitment. Capra advocates that,

> We need a curriculum that teaches our children these fundamental facts of life:
>
> 1. An eco-system generates no waste, one species' waste being another species' food
> 2. Matter cycles continuously through the web of life
> 3. The energy driving these cycles derives from the sun
> 4. Diversity assures resilience
> 5. Life, from its beginning more than three billion years ago, did not take over the planet by combat, but by cooperation, partnership and networking (P.6).

As stated in Chapter 1, my research is based on the assumption that a school can both provide a model of ecological sustainability and plan for students to be educated for a sustainable future. For this, students need to have the basic understandings, the "facts of life" Capra has given as educational fundamentals. It follows that the development of ecological literacy provides a pedagogical means and curriculum content to support the achievement of these goals.

Sustainable Education

This term, specific to Sterling (2001), is explained in his handbook *Sustainable Education: Re-Visioning Learning and Change.* He argues that indeed all education should be "sustainable" that is, based on a new vision reflecting a "whole paradigm change, one that asserts both humanistic and ecological values" (p. 14). This significant re-visioning will mean that learning is "transformative". Sterling challenges much of the present "adaptive" learning that takes place in educational settings (p. 15), based on frameworks for education that leave basic values unchallenged and do not enable students to engage in deep reflection and new learning. Students (and educators) need to question basic assumptions and develop "core values of sustainability such as sufficiency, efficiency, community, locality, health, democracy, equity, justice and diversity" (p. 16).

Sterling (2005) has also been a leader in developing an educational project for World Wide Fund for Nature, Scotland, titled the *Linkingthinking: New perspectives on thinking and learning for sustainability*. This project offers is a series of resources to be used by educators to teach thinking skills that can enable better understanding of interconnection. Sterling explains that, "The key is to think a bit differently, and ask some different questions (p. 5)", entailing thinking "outside the box and being able to look much more at the relationships between things, and between events (p. 5)". Sterling states that, "this project can have other names such as "holistic thinking, ecological thinking, integrative thinking, relational thinking" (p.5).

These ecological frameworks for learning from Orr (1992), Capra (1998) and Sterling (2002, 2005) identify elements that can be included in the development of rich,

productive pedagogy to implement system curriculum documents that support Education for Sustainability in schools. In practice, schools that are prepared to embrace this pedagogy would look very different from traditional schools that are largely geared towards equipping students to live and work within the economic and scientific status quo. Students would experience opportunities to relate appropriately to the earth and its ecological systems, to encounter nature first hand, to think creatively and divergently and envision ways of living and relating that will ensure better futures. However, this modernist meta narrative of the rise of human progress through the domination and exploitation of Nature by means of science and technology remains the dominant worldview even as humanity enters the 21st century, and the epistemology is still reflected in much of schooling.

The two case study schools described in Chapters 4 and 5 are analysed in terms of their commitment to sustainability, the visible modelling they provide and the educational programs (curriculum and pedagogy) put in place to foster that commitment.

Policies and Frameworks

Specifically formulated policies and frameworks from various school systems, including curriculum frameworks, set out to provide direction and content, educational resources, and appropriate pedagogies, to assist schools in becoming models of good environmental educational practice. Some examples of these system frameworks are explored below, both from state and Catholic school contexts.

New South Wales Board of Studies - Curriculum Guidelines

The Board of Studies New South Wales primary curricula in Science and Technology and Human Society and its Environment contain explicit units on environmental studies directly designed to promote environmental education through development of relevant Skills, Knowledge and Values outcomes for students. For example, *Science and Technology K-6:* Syllabus and Support Documents *(1993)* contain student outcomes that can equip students to "describe ways in which resources can be conserved" and "evaluate technological activity in terms of social and environmental costs and benefits" (p. 13).

Department of Education and Training New South Wales. Environment Policy for Schools

In order to develop a practical framework for use with schools participating in the research, I will draw strongly on one major policy document, the *Environmental Education Policy for Schools* of the Department of Education and Training New South Wales (2001). The adapted framework I have developed, *Steps in Becoming an Environmentally Active Catholic Primary School,* used as a research tool in examining both case study schools, is based on this document (See Appendix B). This Environmental Education Policy was a very significant document in guiding New South Wales schools towards education for sustainable futures. It contained appropriate theoretical background and practical frameworks for progressive implementation at all levels of the school. The document identified six clear stages of development in the gradual journey towards comprehensive implementation of an Environmental Management Plan that could lead to integration of environmental education and sustainable living at all levels of the school community.

The stages of development included:

1. A pre-stage of "No Commitment". This refers to a school which has no interest in environmental education and little or no curriculum connection. Resource usage takes no account of its impact on the environment issues and the school grounds have no relationship to environmental education.

2. The second stage moves to "Awareness", where the school leadership want to act for environmental education and provides an introductory related professional development for staff, as well as with at least the mandated curricula implemented to include an environmental perspective. However, conscious use of resources is limited to individual teachers and there is no long term plan for use of the playground as an EfS resource.

3. In the third stage, "Planning", an environmental management committee is established and is actively working towards change. An audit of educational programs and resource usage is being organised and a representative grounds sub-committee is formed.

4. Once these structures are in place the fourth stage "Early Implementation" can come into play with the findings and views of the environmental management committee being reflected in policy and practice. Management of resources and use of grounds are developing to support the curriculum environmental perspectives and students and sub-committee are engaged in auditing the use of the grounds.

5. This stage is followed by "Consolidation" and "Further Consolidation stages" with completion of audits, formation of plans, curriculum integration, action plan for the grounds and purchasing and resources usage reflecting the plans for environmental sustainability.

6. In the final stage "Sustainability", all plans are being implemented as part of the life of the school and reported upon in annual reporting. Curricula have environmental education embedded within all appropriate Key Learning Areas and all opportunities for personal and communal action and awareness-raising are maximized as the school becomes a model to inspire other schools in terms of the curriculum, resource usage and use of the grounds to provide outdoor learning opportunities for EfS. The school can then, in the words of the document, achieve the status of an "environmentally active school" according to the criteria set out in the policy (p 20).

"Environmentally active school" is the term specifically favored in this document rather than terms such as "Sustainable school" used by Sterling (2001) and used nationally in Australia to describe environmental projects involving schools, for example, the CERES Sustainable Schools Project in Victoria and the Australian Sustainable Schools Initiative (AuSSI) nationwide.

The New South Wales policy was a landmark document in education towards sustainability in Australia. The Catholic schools systems have had no counterpart state-based or national document. However, Catholic Earthcare Australia and the NSW Department of Environment and Heritage published the document *On Holy*

Ground- an Ecological Vision for Catholic Education in New South Wales (2006). This document provides a significant advance and has the potential to seriously affect Education for Sustainability in Catholic schools and systems. It contains visionary statements, practical strategies, case studies and resources.

There are certain limitations at work for mainstream schools in attempting to become a model of education towards sustainability. This is referred to variously as becoming an "environmentally active school" in the NSW Department of Education Environment Education policy (p.20), a "sustainable school" (Sterling's model), or in the language of Capra (1998) as an "ecological community" (p.5). *On Holy Ground* referred to above, speaks about "an ecologically active Catholic school" (p.26).

The capacity of the average primary school to fully implement the mandated curricula of the New South Wales Board of Studies is hampered by a lack of independence and resources compared with the educational centers set up explicitly to provide holistic ecological education for state department schools. The Catholic systems of schools share this limitation, although they enjoy the freedom to integrate explicit religious values that can support the development of such a holistic education. However, this freedom has been under-utilized in the past by a failure of Catholic educational system leadership to prioritize Education for Sustainability within strategic planning. This has strong commitment to ecological education at Catholic system and school levels, with some notable exceptions as seen for example in the case of the Queensland Catholic Education Office policy and school practice reported in Chapter 5. The Strategic Management Plan developed by St Mary's School, which was based on recommendations from the Education Audit in 2003, contained some goals related to

Education for Sustainability (although that term was not used in the plan) and demonstrated the potential of existing structures within Catholic education to development environmental consciousness.

The following section examines some of the ways in which Catholic systems have taken account of the need to educate about the natural world and environmental responsibility, both as a response to a sense of the sacredness of the created world as a gift to be respected and cherished and through the implementation of the mandated state curricula.

Catholic Systemic School System Documentation

As discussed above regarding the New South Wales curriculum, I have included documentation from the Catholic system in the Sydney Archdiocese because that was where I was working during most of the period when this thesis was being researched. In addition, it provides a sample of what one diocese was attempting to do during this period. Of immediate relevance to my study is the Sydney Catholic Archdiocesan Schools *Primary Religious Education Curriculum* (2004) which is available on-line.

This curriculum includes scripturally based units of work, which focus on respect for God's Creation and responsibility for the environment. For example, the Stage 3 unit titled, *Creation: a Change of Heart,* found on the website*,* has the following descriptor:

> This unit explores creation as a gift from God, which we are called to protect and care for. Students will identify issues of misuse and mismanagement in the environment and explore how we, as stewards of creation, can respond appropriately and compassionately. The unit will

introduce the concept of 'ecological conversion', which calls us to change the ways in which we relate to each other and to the whole of God's creation. The students will identify their call to challenge those ways and structures that oppress and exploit creation. The concept of Sabbath and the need for Sabbath time in our lives will also be explored in the unit (2004).

This curriculum built on two earlier initiatives. Catholic Education Office, Sydney Archdiocese had published the *Earth Community Education* kit in 1990, which included a Position Paper, In-service Program, Resources listing and Ideas Exchange of good practice. This provided a clear and direct mandate for environmental education across the curriculum, integrating a Catholic religious dimension. The Position Paper urged teachers to re-examine educational processes:

> Do they inspire in our students a sense of awe and wonder, a sense of at-homeness with the natural world? Outdoor education programs and retreat times provide the possibility for students to develop the capacity for reflection and contemplation…We see that, for the Christian, questions relating to the production and distribution of resources in today's world and the state of the world to be bequeathed to future generations, weighs heavily on the followers of Jesus who said: *I have come that they may have life, and have it to the full. John 10:10* (p.5).

Further, the Catholic Education Office Sydney's (1995) publication *A Sense of the Sacred,* a manual for values integration across the curriculum, includes "the Sacramentality of Creation" as one of its key concepts. Although this was written as a secondary schools resource, the program provides rich generic resource material relevant for primary schools, supporting school leaders in making connections between faith and environmental education.

Sydney Catholic Schools: Towards 2010, The Strategic Management Plan (2006-2010) for Catholic Education Office Archdiocese of Sydney, includes a stated commitment

to Education for Sustainability and the development of processes needed to implement that. The section related to "Pedagogy" states that the plan supports the development of school communities, "that educate for and promote a sustainable ecology" (p.14).

The literature from research that is explored in the following section, documents data from various initiatives that have been taken to further advance education towards sustainable futures both nationally and globally. The learnings that emerge from the analysis provide further evidence that environmental education is developing new pedagogies and that systems of schools nationally and globally are taking account to a greater or lesser degree of the need to be environmentally orientated.

2.10   Literature from Research Initiatives

Whole-School Education for Sustainability

The research work of Henderson and Tilbury (2004), conducted through the Australian Research Institute in Education for Sustainability (ARIES) on behalf of the Australian Government Department of the Environment and Heritage, posed several research questions closely related to the inquiry questions for this study *Towards an Ecologically Sustainable Catholic Primary School*.

The questions raised by Henderson and Tilbury (2004) were aimed at examining whole-school approaches to sustainability programs globally in the hope that the findings would enhance planning for the next phases of the *Australian Sustainable Schools Initiative (AuSSI),* referred to earlier in this chapter. *AuSSI is* a joint venture between the Australian Government's Department of the Environment and Heritage

and the state and territory government environmental departments to foster Education for Sustainability in schools. The study included several national and cross-national educational initiatives to support schools.

Key questions, cited in the Executive Summary, which guided the inquiry and analysis are expressed as follows:

> The review reflects upon the experiences and learning of these programs in an attempt to answer the questions:
>
> • What does a sustainable school look like?
>
> • Is there a formula for 'how' to run an effective and wide-reaching whole-school sustainability program?
>
> • Is there evidence of effective methods to engage the community in these endeavours?
>
> • How can the program be effective? (Executive Summary).

These key questions and the related findings are of particular relevance to my research. Question 1 approximates to my first key research question: *What are the **characteristics** of an ecologically sustainable Catholic Primary school?* Questions 2 and 4 approximate to the second key question: *What have been **supporting factors** in the development of such a Catholic primary school?*

Henderson and Tilbury (2004) collected data from five international educational programs that were examples of whole-school sustainability initiatives. These programs included.

- The Environment and Schools Initiative (ENSI) Eco-Schools (Europe), a project of the OECD Centre for Educational Research and Innovation

- The Green School Project, China

- The Foundation for Environmental Education (FEE), a non-government organization based in Portugal which coordinates more than 10,000 participating schools' EE (Environmental Education) projects in four continents

- Green School Award, Sweden, a Swedish Government funded initiative

- Enviroschools, New Zealand, managed by the Enviroschools Foundation.

Not only do the focus questions of the Henderson and Tilbury (2004) research relate closely to my focus questions, but the findings also bear closely on the findings from my two case study schools, selected for this research as examples of whole-school initiatives in Environmental Education within the Australian Catholic schools context.

The findings from Henderson and Tilbury (2004) are organised in answer to the key questions:

1. *What does a sustainable school look like?*

The research found that such a school visibly includes:

- *leadership* that places sustainability at the heart of the school life.

- *whole-school participation*

- *partnership* between stake-holders

- *rich pedagogy* that includes critical reflection, preparation for citizenship, intercultural understanding, and participation.

- *integration* of Education for Sustainability (EfS) across all Key Learning Areas

- *professional development* of teachers

- *greening* of the school grounds

- access to *outdoor learning areas*

- *reduction* of schools' resource consumption

- *planning and research* to facilitate ongoing implementation

2.   *Is there a formula for 'how' to run such a school?* and, closely related to that

   question, *What are the critical success components?* The research found that to

be effective, sustainability education programs that support schools needed to be:

- *relevant* to both the learners and the curriculum

- well *resourced*, financially and with EfS expertise

- *engaged* in critical reflection and developing within a
   'learning organization'

- *responsive* to current best educational theory and practice
   and able to change appropriately

- *in partnership* with relevant stakeholders, other ESF
   Initiatives and ESF resources bodies

- *in touch with* recognised ESF frameworks that include broad
   socio-cultural understandings

- *accredited* with awards for successful implementation

- *aligned* to mandated curricula

The findings from Henderson and Tilbury (2004) provided interesting points of

comparison and contrast to inform analysis of the findings from this study as they are

presented in the second three chapters. I return to this piece of research in Chapter 6 in

the context of presenting the findings from my own research regarding the case study

schools and suggest some recommendations about how school systems could support

them in terms of Education for Sustainability**.**

Suitable Educational Frameworks and Pedagogy

Intercultural Understanding

In an earlier exploration of intercultural understanding in Australian schools, Tilbury and Henderson (2003) examine the essential links between the development of such an understanding and Education for Sustainability. Through research they had undertaken, commissioned by the UNESCO Pacific Centre for International Education, they outline the progressive steps in Intercultural Education towards a point where a program, "facilitates learning for change and provides learners with the tools to construct a more peaceful, sustainable and just future" (p.83). The principal goal of Intercultural Education is described as: "Education for change through addressing social issues with an intercultural perspective arising at the local, national and especially international levels and is closely aligned with that of Environmental Education and Education for Sustainable Development" (p. 83).

Other socially critical educational fields closely associated with EfS are identified as global, futures, anti-racism, peace and citizenship education. A suitable framework for Education for Sustainability needs then to clearly show these links. St Mary's School in particular, with a highly multicultural student population and its commitment to develop a Culture of Peace provides an interesting study of intercultural impacts. Newman School, to a lesser extent, also faced cultural challenges in relation to its high Indigenous student component. Just how successfully the schools addressed these challenges and worked with them to support EfS is described and assessed in later chapters.

Transformative Pedagogy

Tilbury and Henderson (2003) further identify "Transformative Learning Approaches" (p. 85) or pedagogies that can empower students to envision and make progress towards a desired ecological future. These include:

- critical reflective thinking
- a holistic approach
- active learning
- values education and clarification
- experiential and inquiry learning
- dialogue
- critical empowerment
- intercultural communication

Share (2005), also referring to "transformative education" in the context of the Paulo Freire Institute, describes it on the website in the following terms:

> A transformative education uses constructivist pedagogy in which students actively construct and reconstruct knowledge, thereby transforming meanings to arrive at new understandings and different ways of thinking. Beyond the constructivist notion of the creation of knowledge, transformative education also includes critical pedagogy to critique the social construction of ideas and reject the notion that knowledge is value free.

Sterling (1998) offers the following definition of Education for Sustainability, which is a modification for use in school contexts of the United Nations over-arching definition, and which he recommended as a basis for implementation of EfS in UK schools.

> Education for sustainable development enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now without damaging the planet for the future (p. 5).

Sterling (1998) claims that "a definition that will have meaning and currency with the schools sector must have immediacy and directness (p. 5)"

The key underlying concepts Sterling includes in his implementation framework for schools to address Education for Sustainability as so defined are: Interdependence, Citizenship and stewardship, Needs and rights of future generations, Diversity, Quality of life, Equity and justice, Sustainable change, Uncertainty and Precaution.

Sterling (1998) recommended to the UK Department of Education and Employment a set of outcomes for learning at each stage of student development that match each of the concepts listed above and are specifically designed to support Education for Sustainability. An overview of a sample of the matching student outcomes for each of the key concepts Sterling (1998) developed is represented in Table 2.3.

Table 2.4 Generic *Learning Outcomes for EfS- Adapted from Sterling (1998)*

Key Concept	Values and Dispositions	Skills and Aptitudes	Knowledge and Understanding
	Reflect and enact:	*Ability to:*	*Know and understand:*
Interdependence	Compassion for all humanity and concern for social justice globally, now and for the future. Appreciation of the earth and universe as sources of inspiration and challenge to human creativity	Reflect critically on one's lifestyle and choices. Discern patterns of interrelationship between environment and development topics and actions and consequences.	How biological systems operate and support life on earth and are affected by human activity. How major issues such as poverty, consumption, development, health, and loss of species are interrelated. How science and technology have changed the nature and extent of people's effect on the environment.
Citizenship, stewardship	Willingness to act as a responsible citizen, learning from and working with others for sustainability A sense of responsibility for personal and group actions, and an awareness of their	Engage in and manage change at individual and social levels. Find information, weigh evidence, and present reasoned argument on sustainable development	Community action and partnership is necessary to the achievement of more sustainable lifestyles. The connection between personal values and beliefs and behaviour.

	likely impact on natural and human communities, both locally and globally.	issues Express and communicate personal responses to social and environmental issues in a variety of ways	How the school, community and household can managed more sustainably. The roles and responsibilities of government and business in achieving sustainable development.
Future generations	Appreciation that the quality of life of future generations is endangered or enhanced by actions we take now.	Consider the future direction of society and the environment, and personal role and contribution to the future.	Conservation, efficiency and restraint in use of resources is necessary to ensure quality of life in the future. How the current quality of the environment is a result of human and natural history.
Diversity	Respect and value both human diversity - cultural social, and economic - and biodiversity	Weigh impact on diversity of person and group decisions	The maintenance of diversity is necessary to the health and sustainability of natural and human systems.
Quality of life and equity	Appreciate why equity and justice is necessary to a sustainable society.	Distinguish between wants and needs. Express quality of life in personal terms beyond consumption	There are basic and human needs and that these are universal Inequality, exclusion and injustice persist within and between societies. Quality of life is a broader concept than standard of living.
Development, carrying capacity and change	Appreciation of the need to develop lifestyles which respect resource and carrying capacity limits.	Envision and distinguish between possible, probable and preferable futures. Question decisions, practices and processes which affect sustainable development issues and critically explore alternatives.	The earth's resources are finite, precious and access to them is unequal. A variety of economic and political forces determine how resources are used and managed. How business and industry is responding to the challenge of sustainable development.
Uncertainty and precaution	Appreciation that there are a range of possible approaches to sustainable development issues .	Listen to, critically evaluate, and learn from a range of voices and opinions on sustainable development issues	Knowledge about the environment and our relation to it is growing, changing and uncertain.

By implication there is a requirement for a pedagogical model at each stage that could facilitate the desired outcomes. Teachers would need for example to provide learning strategies to help develop the listed Skills and Aptitudes, including critical thinking, creative listening, critical judgment, decision-making, and distinction between concepts that are similar.

In Chapter 5, the testimonies of teachers at Newman School include reference to "transformative education" as being characteristic of their school's pedagogy in its intention to influence environmental education. To what extent the school's practice truly reflected transformative pedagogy in the sense described above where students "actively construct and reconstruct knowledge" and are "empowered" to "envision" better futures is matter for discussion in Chapter 5.

Research papers in the field of Education for Sustainability from around the world help to further clarify terminology, explore philosophical and pedagogical understandings and test practical programs for best practice, providing points of comparison for Australian educators. For example, Salite (1998) defines what she terms, "An Ecocentric Paradigm: An Important Tool for Teachers of Environmental Education". Salite argues that, within a school setting, eco-centrism can promote "pupils' spiritual development within a model of humanistic pedagogy" (p.81). This research is set in schools that prioritise students' spiritual development as a major educational goal, and a research task was to explore whether the schools' spirituality was connected with the development of their ecological understanding and sensitivity.

Aleixandre and Rodriguez (2001) in the British journal, *Environmental Education Research,* reported their studies of attitudinal development in a Spanish primary class through the design of an environmental field study code of conduct. This study has significant findings about quality *pedagogy* that can lead to effective environmental education. The outstanding factor was the full participation of the students in taking responsibility for the developing focus of the study and the behaviour code they designed collaboratively that applied during the field trip. This was an example of

"active learning" that can prepare students for "citizenship" (p.7). The elements that characterised this pedagogy include:

- respectful discussion

- problem-solving

- acquiring new knowledge

- discovering the relevance of this knowledge to life

- acting in a way consistent with knowledge acquired

A Culture of Peace

Tilbury and Henderson (2003) argue that education for a better future has at its core the "need to educate for peace, justice and democracy" with the ultimate aim of promoting a "global culture of peace through sustainable development" (p.86). The concepts related to the culture of peace are closely related to the phrases used by Pope John Paul II (1990) in his New Years Day Message *Peace with God, Peace with the Whole of Creation.* Here of course they are used in the context of a Catholic religious belief framework, which is the context also of this research.

The concepts of a global culture of peace and sustainable development, so integral to the Tilbury and Henderson (2003) article and closely aligned with the other fields of socially critical education, bring together the work in Education for Sustainability (EfS) that is happening *outside* the Catholic education context with educational responses being made *within* the Catholic context to the Church's call to "ecological conversion" articulated by Pope John Paul II (2001a).

The research referred to here is particularly relevant to my study in the light of the Culture of Peace which was a strong cultural feature of St Mary's, as described in Chapter 4. I needed to explore to what extent this was relevant to the school's growing ecological commitment.

Models of Education for Sustainable Futures

Key journals that publish research from around the world and within Australia in the field, have further informed my study by providing case studies describing various models of Education for Sustainable Futures. They include the *Australian Journal of Environmental Education*, the *Canadian Journal of Environmental Studies* and the international journal *Environmental Education Research.* Their value lies in providing information about:

1. where initiatives have been taken in setting up educational programs in systems of schools and individual schools

2. providing descriptions of these initiatives, and

3. evaluating them.

The *Australian Journal of Environmental Studies* has included several Queensland-based school studies by Ballantyne, Fien and Packer (2001a) comparing the relative effectiveness of school environmental programs in both primary and secondary schools. Kwan and Miles (1998) studied the attitudes and aspirations of primary and junior secondary students towards the environment. There were some conclusions from these studies that may support the importance of education for sustainable futures to be targeted, though not exclusively, at children in primary schools when they are

particularly receptive. Both studies showed that the affective involvement of students in their environmental studies has a positive influence on attitudinal change and life responses.

Whitehouse (2001) looked at the influence of peer pressure in schools on young people committed to environmental responsibility. Her findings showed how

 important it is to have a whole school commitment to education for sustainable futures, so that a few dedicated "greenies", volunteers for a specific environmental project, are not isolated and negatively tagged within the student (or even staff) community.

All these studies point to the importance of a definition of EfS that includes

knowledge *about*, *in* and *for* the environment within the context of a whole school,

comprehensive approach.

A practical illustration of this integrated approach was reported by Kowalski (2003), who described the environmental education program and commitment to developing ecological awareness of students at St Xavier's Primary School (pseudonym to

preserve the anonymity of the school), in a New South Wales Catholic Diocese. The school's program included composting, planting of trees, vegetables and fruits, wormeries, an outdoor meditation area, water collection through tanks, the establishment of a wetland, a carbon tree-planting swap system to compensate for

school-associated cars and a cooperative venture with the University of Newcastle to introduce native plant species.

Awards as Incentive

The Comalco Green and Healthy Schools initiative in Queensland produces an annual report of selected case study schools which have won various awards in the Keep Australia Beautiful/Comalco program. There are numerous Catholic schools among the successful entrants and the achievements of these schools set benchmarks against which the ecological development of other Catholic schools can be judged.

There is a notable overall absence of examples in the research literature of good practice in EfS and research springing from a specifically Catholic school perspective. This strengthens the timeliness of my study.

2.11   Summary of Literature Findings

The literature in support of education towards ecological sustainability is comprehensive and convincing. It is clear that the ecological crisis exists and needs to be addressed as a matter of great urgency. It is also clear that the Catholic Church sees this as a key aspect of its educational work with children in the Catholic school context. The Church has produced extensive theological and doctrinal resources that further justify its inclusion. The literature shows that there has been a slowness to respond educationally, especially in the Catholic context, despite the comprehensive

resources and research findings at the global level that have driven Education for Sustainability beyond Catholic systems.

Since I began this study, there has been an explosion of interest at corporate, government and citizen levels in the reality and impact of climate change and global warming, There have been recurring reports in the media, particularly in response to the release of Al Gore's multimedia production, *An Inconvenient Truth* (2006), a copy of which was sent to every secondary school in Australia and which captured awards and attention around the world. This production had the potential to popularise in an engaging and revolutionary way the science of climate change and to promote education towards an understanding of the urgency of making appropriate responses to the environmental crisis.

In the light of the literature study, I believe there can no longer be any doubt that education towards sustainability is one of the most important challenges facing any educational institution that hopes to form citizens who can relate positively rather than negatively to the earth that sustains us all.

The following chapter sets out a methodology to test that belief through practical field work, engaged in at two Catholic primary schools striving to take these challenges seriously.

Chapter 3.   THEORETICAL FRAMEWORK, METHODOLOGY AND RESEARCH METHODS

3.1   Introduction

This chapter outlines the theoretical framework for the research, the appropriate methodology and the practical research methods chosen for data collection and analysis. The theoretical framework includes an appropriate epistemology, some underlying guiding assumptions and the theoretical perspectives that underpin it.

Since this research was undertaken in the context of Catholic primary systemic schooling, there are assumptions that are beyond the scope of this research that are considered as given. These include the Catholic values and ethos and the doctrinal framework that provide the foundation out of which all Catholic schools operate. There is the assumption that the school is by definition a learning organization which has children's learning as its core business. Further, there is an assumption that Catholic schools aim to provide an environment that seeks to model Catholic Faith in action.

3.2   Theoretical Framework

Epistemology

Underpinning any research study, there is an appropriate chosen epistemology. The Standford Encyclopedia of Philosophy states on its website that "Epistemology is about issues having to do with the creation and dissemination of knowledge in particular areas of inquiry". It continues, "As the study of knowledge, epistemology is concerned with the following questions: What are the necessary and sufficient

conditions of knowledge? What are its sources? What is its structure, and what are its limits?"

Burns (2000) describes the respective "gateways" to knowledge, opened through quantitative and qualitative methods (p11). He compares the inductive and deductive methods of scientific positivism that aim to arrive at certain precise facts (knowledge) with the qualitative search for "Truth" that is subjective, but yields finding (knowledge) that is none the less valuable. Burns (2000) describes the qualitative search for knowledge as follows:

> The task of the qualitative methodologist is to capture what people say and do as a product of how they interpret the complexity of their world, to understand events from the viewpoints of the participants. It is the lifeworld of the participants that constitutes the investigative field. The 'Truth' within this context is bound to humanistic caprices. Thus, conventional attempts to emphasise the imperatives of science place unrealistic constraints on research (p. 11).

This study asks how schools are responding and how they can respond educationally to a particular global crisis, the ecological crisis. Such a response requires a new way of acquiring and acting upon knowledge, even the generation of new knowledge, since the research addresses an area within education that is particularly contemporary and not typical. The response is made by human beings who experience reality individually and shape it uniquely. The school is a dynamic, ever-changing environment that is human-centred. As such the research is appropriately conducted out of an open, qualitative framework rather than a strictly quantitative approach with tightly pre-determined boundaries producing statistical data for analysis.

Epistemological Paradigm

The epistemological paradigm chosen to inform this research project is constructivist post-modernism. This philosophical stance is described by the Suny Series Editor, David Ray Griffin, in writing the introduction to *Ecological Literacy: Education and the Transition to a Post-Modern World by* David Orr (1998). Griffin examines the terms modernity, postmodernity and revisionist or constructivist postmodernism. By way of contrast to constructivist approaches, Griffin claims that *deconstructivist* post-modernism "deconstructs or eliminates the ingredients necessary for a world view, such as God, self, purpose, meaning, a real world, and truth as correspondence" (p. iv).

This study assumes the absolute significance of all the "ingredients" mentioned by Griffin. The Catholic school system operates within a framework where the existence of God, the value of the human person and the meaning that follows from a stated values system are all assumed as foundational. For the purposes of this research, which is situated within a Catholic educational context, these assumptions are accepted. Hence, deconstructivist post-modernism that questions all assumptions, is inappropriate as a theoretical perspective for this study.

Griffin contrasts "pre-modern" cultures, which "contained notions of cosmic meaning, enchanted nature and divine milieu" (p. v), with modernity, which was founded on the rationalistic, mechanistic scientism of the seventeenth century. He argues that the sense of the sacred within the cosmos is an aspect of pre-modernity that it is essential to rediscover in the post-modern world. For Griffin, constructivist post-modernism

seeks to overcome the modern worldview…..by constructing a post-modern worldview through a revision of modern premises and traditional concepts. This…involves a new unity of scientific, ethical, aesthetic, and religious intuitions. It rejects not science as such but only that scientism in which the data of the modern natural sciences are alone allowed to contribute to the construction of our world view (p. v).

Griffin further proposes that constructivist post-modernism can transcend the modernist world view to embrace the "ecology, peace, feminist and other emancipatory movements of our time" (p. v). This study requires a research framework that is capable of "transcending individualism, anthropocentrism, patriarchy, mechanisation, economism, consumerism, nationalism, and militarism" (p. v), to "construct a post-modern worldview through the revision of modern premises and traditional concepts" (p. iv). These new ways of transcending modernism and scientism involve a paradigm shift in thinking and in ways of being human. The future health of the planet requires humans to think in new ways and to evolve healthful relationships with the natural world.

Human thinking will need to challenge traditional views that allowed the exploitation of the earth, construed as a collection of non-living resources that serve economic growth, so that a new paradigm can emerge wherein the earth is seen as living and sacred, and humans are invited to respectful relationships with it.

Constructionism, an allied term, is defined by Michael Crotty (1998) as:

the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context (p. 42).

According to Crotty's (1998) definition, humans are intrinsically capable of new ways of knowing as they experience nature and learn to enter into relationship with the earth. This research depends on a theoretical framework that supports the notion that former ways of thinking and being can be transcended by newly "constructed" and more appropriate ways. The literature study provides examples of paradigm shifts in ways of thinking about human relationships with the earth, and of ways in which religious influences and educational models have shifted and need to continue to shift in response to the ecological crisis that has been identified.

It is useful at this point to clarify the distinction between 'constructivism' and 'constructionism' as Patton (2002) does in drawing upon Crotty (1998), whom he quotes directly (p. 97).

> It would appear useful to reserve the term 'constructivism' for the epistemological considerations focusing exclusively on the meaning-making activity of the individual mind and to use 'constructionism' where the focus includes the collective generation [and transmission] of meaning (p. 58).

Hence, my understanding is that constructionism relates to the conditioning effects of culture in influencing our view of the world and constructivism is about the legitimate, unique view an individual has, shaped by experience, which can never be fully duplicated or understood and is not therefore subject to critique by another human being. As Crotty goes on to say

> Whatever the terminology, the distinction is an important one. Constructivism taken in this sense points out the unique experience of each of us. It suggests that each one's way of making sense of the world is as valid and worthy of respect as any other, thereby tending to scotch any hint of a critical spirit. On the other hand, social constructionism emphasises the hold our culture has on

us; it shapes the way in which we see things (even in the way in which we feel things) and gives us a quite definite view of the world (p. 58).

In the context of this thesis, constructionism is an appropriate term to be associated with the "constructivist methodology" I have outlined above as employed in this research, which is about building up data and drawing conclusions through analysis within social settings to create new meaning.

The answers to the key research questions were developed gradually (constructed) through the research methods employed to collect data. Through the analysis of that data and its synthesis, conclusions were drawn about how schools become ecologically sustainable learning environments. These conclusions were the product of a process that created new knowledge. Crotty (1998) says that," In the constructionist view, as the word suggests, meaning is not discovered, but constructed" (p. 42).

Claude Levi-Strauss (1966) sees the social researcher as a type of scholarly "bricoleur", a person who constructs something new out of existing bits and pieces.

> Consider him (sic) at work and excited by the project. His first practical step is retrospective. He has to turn to an already existent set made up of tools and materials, to consider or reconsider what it contains and, finally, and above all, to engage in a sort of dialogue with it, and, before choosing between them, to index the possible answers which the whole set can offer to his problem. He interrogates all the heterogeneous objects of which his treasury is composed to discover what each of them 'signify' and so could contribute to the definition of a set which has yet to materialise (p.18).

Underlying Assumptions

The underlying assumptions adopted in this study about the nature of the created world and human relationships with that world, involve some basic shared beliefs that are "givens" within Catholic doctrine and are foundational to the philosophy and practice of Catholic schooling. These beliefs are clearly enunciated in the *Catechism of the Catholic Church* (1994*)*. For example, the cosmos was created by God (Parag. 296, 317-318), is sacred (Parag. 324), is shared with humans who are created in the image of God (Parag. 346) and that humans are intended to live in harmony with nature (Parag. 299). These tenets of belief are introduced in all Catholic schools through educational literature developed from the Catholic tradition, including the Catholic scriptures and religious education texts. I do not intend to develop these understandings, but accept them as foundational. However, the research process remained open to hear how these "givens" are or are not accepted or understood by the various research subjects and how they relate to the factors that influence the development of environmental awareness in schools. For example, schools have varying levels of awareness of the Church's stated position regarding ecological conversion and the mandate to educate students towards ecological responsibility.

I argue that the acceptance of these fundamental doctrines is compatible with a constructionist framework, since it can be argued, as Crotty's (1998) description of constructionism included above does, that conclusions can be arrived at through the natural processes of reasoning, or through rational "construction" (p.19). Part of the construction of an ecological understanding within a Catholic school context includes building upon interpretations and applications of these fundamental doctrines which

can add inspiration and impetus to the evolving consciousness that is needed to underpin and sustain a practical commitment to Education for Sustainability.

Theoretical Perspective: Interpretivism

Crotty (1998) defines the theoretical perspective as, "the philosophical stance lying behind a methodology" (p. 67). A piece of research will be partially shaped by the perspectives that the researcher adopts. In this case, since ecologically-related educational studies are conducted in a relatively new field of interest, there are few examples of practice on the ground to draw upon. The evidence and experience comes from a narrow area and a relatively small number of practitioners compared with the overall educating community. Moreover, understandings of ecology and sustainability are often at variance with post-Enlightenment science and mathematics that were catalysts for human progress and invention, often with catastrophic impact on the ecology of the earth. As Smith (2004) expresses it:

> For the people of the Western world, the centuries of the Enlightenment brought about a profound, cataclysmic shift in world-view. Descartes' dualism, Copernicus' and Galileo's insight that the earth was no longer the centre of the universe, Francis Bacon's development of an analytical scientific method, Newton's determination of the mathematical basis of natural laws and Kant's philosophy of reason…provided the underpinnings to the shift to the powerful reductionist, mechanistic and deterministic paradigm that gradually became the dominant world-view (p. 19).

New paradigms based on new perspectives are needed in approaching a study in this area. Close examination of experience within a restricted but clearly defined area of human endeavour is necessary. A way of thinking that is open to the unexpected, the non-predicted, without formal statement of an hypothesis, is appropriate.

The broad theoretical perspective most appropriate for this research is Interpretivism, which developed in response to the positivist approaches that were traditionally applied in the sciences and in quantitative social research. Crotty (1998) says positivist methods claimed to employ "value-free, detached observation" and to achieve "control and predicability" (p. 67). The interpretative approach, on the other hand, "looks for culturally derived and historically situated interpretations of the social life" (p. 67). Burns (2000) says of Positivism that the "uncritical acceptance of this approach has lead to its assimilation within research to the point where measurement and control have been seen as the central focus of investigative endeavours" (p. 4). Burns (2000) does not denigrate traditional quantitative approaches to research, but balances their strengths and shortcomings with those of the more recently recognized qualitative methods.

Within Interpretivism, the theories of phenomenology and hermeneutics are closely related. A researcher undertakes to study certain phenomena and interpret them through processes of engagement, examining culture, looking at everyday life, with fresh eyes, putting aside as far as possible all previous beliefs and mindsets, in order to critique and create new meaning. Crotty (1998) holds that the researcher is "suspicious" of culture, even though culture is vital for our human development. Why? Because culture is "limiting", it carries certain understandings to the exclusion of others (p 81).

> Phenomenology is about saying" No!' to the meaning system bequeathed to us. It is about setting that meaning system aside. Far from inviting us to explore our everyday meanings as they stand, it calls upon us to put them in abeyance and open ourselves to the phenomena in their stark immediacy to see what emerges for us (p. 82).

In other words, the researcher, through experiencing reality, is engaged in developing new interpretations of that reality. Burns (2000) states that "the phenomenological field of educational action embraces the host of personal meanings that are derived from the context of direct experiencing" (p. 11) and further he makes the application of phenomenology to the educational context.

> Thus, the 'reality' of a given educational setting may be seen not as a fixed and stable entity but as a type of variable that might be discerned only through an analysis of these multiple forms of understanding. Qualitative methodologies provide avenues that can lead to the discovery of these deeper levels of meaning (p. 11).

Phenomenology as a philosophical stance is appropriate in the context of the qualitative research methodology employed in this study, which also draws on aspects of Grounded Theory, described later it the chapter. The methods associated with this theory were used to study objects, situations and events from the ground up, allowing me to interpret phenomena in order to develop feasible new theory about the world and human responses to it, in this case, the world of the Catholic primary school and how such a school can go about developing ecological awareness and commitment.

As researcher, I intended to come to the case study schools with fresh eyes and gradually build up a body of knowledge that could be interpreted in answer to the key questions posed about the nature and development of an ecologically sustainable Catholic primary school. However, I acknowledge that I carried pre-conceived ideas and impressions of the case study schools, especially in the case of St Mary's, with which I had a long professional association apart from this specific research project.

As researcher I attempted not to allow these pre-conceptions to unduly influence the data interpretation.

3.3   Methodology

Qualitative Research

The research employed qualitative methodologies that are utilized largely in the social sciences and education. Qualitative research has several distinctive qualities as identified by Neuman (2003). It provides rich data from fieldwork and face-to-face encounters; it is "open-ended" (always being refined as the researcher is engaged); "comparative" (categories are constantly being refined in the light of new data); "ongoing" (judgments are constantly being made during data-gathering) and "inferential" (a number of theories are developed in the course of the work) (p. 439).

Strauss and Corbin (1998) define qualitative research as, "any type of research that produces findings not arrived at by statistical procedures or other means of quantification" (p. 10).

The research literature study, together with my own experience as a Catholic educator, indicated that there were relatively few examples of ecologically sustainable Catholic primary schools within Australia. Since this study aimed to explore the nature, development and characteristics of such schools, it was appropriate to identify two contrasting schools as case studies that could predictably yield extensive and useful data. With this limited sample, quantification was not feasible; nor was it necessary within my chosen qualitative methodology.

A prerequisite for the study was to find schools where the school leadership would be open to the research and confident their school could nominate informants who would be able to respond to the two key research questions:

1.   What are the essential characteristics of an ecologically sustainable Catholic primary school?

2.   What conditions support the development of an ecologically sustainable Catholic primary school?

These questions assumed that the chosen schools would be Catholic primary schools, known to have a reputation as schools committed to ecological sustainability, with a conceptual understanding of ecology and sustainability. Hence, it was assumed that an in-depth study of the identified schools would yield good quality data, rather than a wider study of schools that could have included a sample of several schools well known to me but which did not enjoy such a reputation.

Since the research employed qualitative research approaches, it did not set out a formal hypothesis regarding the possible outcomes of the research, as would be the case in a quantitative research project where collected data would be statistically analysed to indicate trends. Burns (2000), drawing on Eisner (1979), explains that "qualitative methods are concerned with processes rather than consequences, with organic wholeness rather than independent variables, and with meanings rather than statistics" (p.12).

This research model was planned so that I could spend dedicated time in the two school environments, utilising several qualitative research methods described later in

this chapter. Through a process of analysis, the important concepts the participants had expressed through sharing their experience were identified, categorized and clarified. Concepts gathered through evidence collection were similarly analysed.

From the analysis of the overall data, theory was gradually developed to describe and explain the characteristics of an environmentally active school and the conditions that were needed for each individual school to develop effective practice, based upon sound theory. Strauss and Corbin (1998) define theory as "A set of well-developed concepts related through statements of relationship, which together constitute an integrated framework that can be used to explain or predict phenomena" (p. 15).

Ethnographic Approaches

The research employed ethnographic approaches, which Burns (2000) suggests are able to encompass "any study of a group of people for the purpose of describing their socio-cultural activities and patterns" (p 393). Sometimes, according to Burns, ethnographic studies are extended over many weeks, even months, so that the researcher can work in stages, the initial stage taking the form of casual observation and familiarization, followed by data gathering in a second phase that is still not yet fully focused, but developing clarity. A later third stage that can benefit from the earlier exploratory stages is engaged in using the clear questions that have been carefully designed in the light of the earlier field experience.

In the case of my research at Newman School, there was not scope for this more leisured approach that enables a long period in the field and a chance to check and

recheck the data. I did have a long association with St Mary's as a professional schools consultant and was able to observe closely the life of the school in an ongoing way.

The characteristics of an ethnographic study as described by Burns (p. 396) were largely present during my formal visits to the schools. These methods include an emphasis on *process*, within the actual, natural setting, where phenomena were studied in context, in order to understand social action and interaction, making use of multiple techniques to uncover varying perspectives.

Grounded Theory

The research methodology draws upon insights from Grounded Theory, a qualitative approach, developed by Glaser and Strauss (1967). They summarise the methodology as "the discovery of theory from data" and introduce it as an alternative to the former methods of social research which "have focused mainly on how to verify theories"

(p. 1). Glaser and Strauss maintain that through the collection of data from subjects, using a variety of strategies, the researcher can filter material to identify and build up a set of key, recurring concepts (categories) and related sub-concepts (properties). In order to collect and filter data, the researcher works within a number of structured situations until the key concepts emerging reach "saturation" point (p 70). That is, concepts continually emerge until the researcher is convinced they are the fundamental concepts to be considered in formulating theory that can address the key research question.

Maykut and Moorhouse (1994) contrast this "emergent" research style, where the data collected is progressively analysed and organised into categories, with "non-emergent"

methodology that collects the data and the analysis is done at the end of the field study (p. 44).

This is an important point, as ongoing analysis undertaken progressively during encounters in the field can point the way towards each successive step in terms of the number and composition of interviews and observations. For example, in one school studied, an interview with a senior staff member ended in a recommendation to speak with a former staff member who was newly engaged in active leadership for ecological development in a different school setting, but had exercised crucial leadership in the development of their former school. These opportunities could only be pre-determined to a limited extent. In other words, the research design was open. The research was undertaken on the ground, in face-to-face interaction with participants and this interaction to some extent shaped the methods used.

Although there is reference to and some dependence upon Grounded Theory as a resource to clarify my methodology, as the research unfolded, the work of other scholars in the area of qualitative research, particularly Burns (2000) proved useful. I was able to draw on elements from Van Manen's work (1990) in qualitative methodology. He suggests, as does Burns, that the ethnographer use the personal interview and the recording of field notes as a hermeneutic tool to "explore and gather personal narrative material that may serve as a resource for developing a richer and deeper understanding of a human phenomenon" (p. 66). In the case of my research, phenomena to be understood included every aspect of the school's life that could have a bearing on its educational development towards ecological awareness, as summarised in the framework *Steps in Becoming an Environmentally Active Catholic Primary School*

(See Appendix B). It was these phenomena I set out to study through the various research methods listed later in this chapter.

3.4   Sites of Research

The research centred on the two case study schools and in conjunction with them to a limited extent touched on the wider systemic context that influences each of the schools. They were both Catholic primary schools.

One school, referred to for the purposes of this study as St Mary's, is within a New South Wales Catholic schools diocesan system. The second school, known as Newman School within the research, is part of the Catholic diocesan schools system of a Queensland diocese. Both schools are parish schools. They are similar in population, each with approximately 400 primary students. The schools differed in terms of student population. St Mary's has up to 95% Language Background Other than English (LBOTE). The students and families come largely from an area of low socio-economic standing within a greater metropolitan area.

Students and families of Newman School were largely of English Speaking Background (ESB) with a significant number, approximately thirty, of Indigenous students of Torres Strait and Islander background. These cultural features of the schools were anticipated to be important influences in the development of their educational programs, including environmental awareness.

St Mary's School, New South Wales

St Mary's is one of a cluster of forty schools within a region with a variety of cultural and socio-economic backgrounds. All schools in the diocese are informed by the vision statement for Catholic education of the associated diocese, a vision of Catholic education which highlights the relevance of faith to life and contemporary culture. While environmental responsibility is an important aspect of cultural understanding, there was no explicit Catholic diocesan system policy for environmental education, as such, when the field work was begun (2004). However, the new *Strategic Management Plan 2006-2010* for the diocesan system of schools did include goals related to sustainable development and education for the system's schools. For example, in the key area "Students and their Learning", there is a goal stating that school structures are intended to foster "school communities that educate for and promote a sustainable ecology". Further in the key area addressing "Resources, Finances and Facilities", there is a goal promoting a "culture that demonstrates stewardship and accountability for resources".

The revised primary Religious Education curriculum (2004) for the Catholic systemic schools of the region where St Mary's is situated includes units specifically related to environmental themes. (The relevant Catholic Education Office strategic management plan and Religious Education curriculum are not referenced in this study in order to maintain the anonymity of the case study school).

The New South Wales Board of Studies curricula for Key Learning Areas, which are mandated for use in the diocesan Catholic schools, contain an environmental perspective wherever appropriate.

The research did not question the pedagogical principles that are foundational to these syllabus documents, but accepted that, if well implemented, syllabus intentions provide students with appropriate opportunities to engage fully in their learning, make personal meaning from their learning experiences and become lifelong learners with an ecological sensibility.

In my role as Regional Primary Schools Consultant for St Mary's, I was in a position to observe the growth of the school during the four years prior to the specific research field work being undertaken. In this role I took oversight of aspects of school review and the subsequent development of the school's strategic plan. The school has published a clear set of goals related to environmental education and sustainability. These goals are accompanied by annual strategies for implementation.

Newman School, Queensland

Newman School had been developing as an environmentally sustainable school for over ten years, and was viewed in its Queensland diocese and beyond as a model of sustainable education. I became aware of the school through its Principal, who was a co-member of the Advisory Committee for Catholic Earthcare Australia for three years prior to the research. I had no previous contact with Newman School nor its particular Queensland diocese prior to the week spent there for the research field work.

Appropriate permission from system authorities has not presented an obstacle as the Directors of both Catholic school systems and the school Principals supported the

research and saw its results as potentially valuable for Catholic education. The required ethical approaches were made to each of the school systems involved (see Appendices C and D).

The choice of qualitative research methods allowed scope for the schools to open up face-to-face dialogue with me and provided an opportunity to reflect on their development in the light of the research questions. This process approximated to a form of critical self-evaluation on the part of the schools regarding their commitment, policy and educational practice to foster ecological sustainability.

3.5   Case Study Research

The major method employed in this qualitative study is the case study. This method is consistent with the interpretative, grounded approaches that flow from a theoretical perspective that is both constructionist and interpretative. Crotty (1998) explains that through the case study approach the research "looks for culturally derived and historically situated interpretations of the social life" (p. 68) within the research context, in this case, the two school communities.

Within each of the case studies, strategies used included individual and group interviews, staff focus groups, participant observation, and collection of documentation which Glaser and Strauss (1967) refer to as slices of data. There was a level of participant observation in each of the schools, but especially in St Mary's, where there was more extended access to the school as an observer over a longer period of time. I was able to join in the daily activities of the school and attended appropriate functions and staff development opportunities during the time in the field.

At times, for example, my presence at morning tea with staff, or walking around the playground while children were playing and coming up to speak, were valuable opportunities for collection of data that was immediate and authentic and formed part of my field notes.

A particular aspect of the study was to observe the effect in the schools of the respective school system authorities (Catholic Education Offices) that administered them and provide a very significant part of their overall context.

Nature of the Case Study

Burns (2000) cautioned against using the term "case study" as a 'catch-all' title for any study that does not fit into the more traditional, quantitative methodologies. To qualify as a case study, Burns (2000) argued that the study in question "must be a bounded system- an entity in itself" (p. 459) and this entity should be either very "representative" or very "atypical" (p. 460).

A Catholic school that is an acknowledged environmentally active educational community would qualify as a discrete entity and as starkly atypical. Of the thirty-nine schools listed as awardees for the 2004 Sustainable Schools program sponsored by the Department of Environment and Climate Change NSW and found on the website (2008), only one award was granted to a Catholic secondary school, and none to Catholic primary schools.

Each of the schools is a separate educating community with its own administrative and educational structures and leadership. While each operates within the overall policy, strategic plan and direction of its diocesan system, there remains for the individual schools a strong measure of local identity and independence. They are discrete entities and as such qualify to become case study subjects.

There are few Catholic primary schools among the thousands in Australia that could qualify as an ecologically sustainable school, the term favoured in this research. This term is closely related to the descriptor "environmentally active school", which is the term used in New South Wales to describe a school that has policies and practices in place, according to the benchmarks outlined in state education department policy documents such as the policy of the New South Wales Department of Education and Training entitled *Environmental Education Policy for Schools.* (2001). In New South Wales, the Sustainable Schools program of the Department of Education and Training (2003) invited schools to nominate as part of the program and work towards becoming "Sustainable Schools". Of the 200 schools across New South Wales that participated in 2003 and 2004 as pilot schools in the Sustainable Schools Project, only a small minority of schools were from Catholic systems. I know from many years of observation working within the Catholic primary schools in Sydney that well developed environmental educational programs and environmentally sustainable practices in schools were the exception. At the time the research was undertaken, if such a school could be found, it would be atypical. The system had not focused on this aspect of education at policy and strategic levels within the ten years prior to the research period. St Mary's, the case study school, was an exception.

In the Queensland diocese, there has been a high level of diocesan commitment to environmental education and development of environmentally sustainable good practice in schools. However, Newman School, approached to be part of this study, remains one of only a few schools that have been highly developed as outstanding sustainable school communities and are recognized as such widely within the diocese and beyond. Senior staff within the diocesan Catholic Education Office, agreed that Newman School was a suitable school for the study. Hence, both schools are atypical in this sense. Both schools were selected because they had earned the reputation among their peers and system administrators for being outstanding in the area of environmental education and practice prior to this research. Both had won major government awards to acknowledge their ecological achievements and in this the schools were not typical of diocesan Catholic primary schools, but again were considered exceptional.

Access to Case Study Schools

The challenge of gaining admission to the schools did not prove to be difficult. As mentioned previously, St Mary's was one of a cluster of schools regularly visited by me in the course of the year in my regular professional capacity. I was able to observe the development of the school during four years prior to the intensive time spent there specifically as a participant observer and interviewer for the purposes of this study.

The former Principal of Newman School was a co-member with myself of Catholic Earthcare Australia, a Church environmental organization founded by the Australian Catholic Bishops' Conference for education, advocacy, networking and research in response to the call of Pope John Paul II (2001) to "ecological conversion", cited in

the literature study as a key Catholic concept related to this research. The former Principal was a major resource person for Catholic Earthcare Australia and well known as a leader in education for ecological sustainability within the Queensland diocese where the Newman School is situated.

Methods Used within the Case Studies

Case study methodology, according to Burns (2000), has the aim of "probing deeply and analysing the multifarious phenomena that constitute the life cycle of the unit, with a view to establishing generalizations about the wider population to which the unit belongs" (p. 461).

The two case studies involved gathering facts and impressions from first hand observation within the school settings. This meant spending time within each school setting, engaged with the school community as it went about its day-to-day activities, interviewing key staff members, engaging in staff focus groups and gathering whole school policy and classroom documentation.

The study involved what Burns (2000) describes as an attempt to "understand the observed patterns of behaviour engaged in by those being studied" (p. 395). The researcher was a "participant observer", described by Maykut and Moorehouse (1994) as being present "in the natural settings where the phenomena under study take place" (p. 72), hearing from the key people who had been and continue to be the inspirers and activists in the development of the schools over a number of years.

Case Studies as Observational

The case studies qualified to some extent as both "Observational" and "Historical". In the Observational type of study, Burns (2000) says that the analyst enters into the life of the unit under study, in this case the selected school, as a non-participant but as an "empathetic, non-intervening" observer (p. 461). The observational component was necessary in the study to confirm that the chosen schools were, as was widely believed of them, indeed working towards becoming ecologically sustainable, "environmentally active schools", as discussed earlier in this chapter.

This stage involved spending time observing how environmental awareness and practices were integrated within the total life of the school. The following aspects of the schools' life were identified as potential opportunities for observation and data collection during the school visits:

- assembly
- playground arrangements (for example, rubbish disposal, availability of shade, development of gardens)
- use of energy (artificial lighting, heating, air-conditioning)
- water usage (taps dripping, wastage, installation of tanks)
- limited class visits to experience students and teachers at work, to observe to what extent environmental perspectives were integrated within classroom learning programs
- regular newsletters that include references to Education for Sustainability.
- Student Council awareness and involvement
- links with outside agencies and initiatives.

Observations of custom and practice and informal comments from staff, parents and students were recorded in field notes and photos.

The Case Study as Historical

 A further aim in the case studies was to trace the successful *development* of the school as an environmentally active educational community. An oral history could be built up using extensive interviewing of a key person, in each case the Principal, who had been a consistent presence and a major influence in the school's development of policy and practice during the years in which the schools became environmentally conscious and committed. The interviews were to be open-ended and informal, but guided by the following questions, cited in the original Letter to Participants (see Appendix G):

- How did your school become committed to environmental education?
- Who were the people most influential in this development?
- What helped the development?
- What hindered it?
- Where do you think your school sits at present within the table *Steps in Becoming an Environmentally Active Catholic Primary School?* (See Appendix B)
- What do you think would help the continuing development of good policy and practice?

This original list of questions posted to participants was further refined before the actual interviews.

The Case Study as Ethnography

In the course of the case study, ethnographic approaches were employed. Burns (2000) explains that ethnography literally means "writing about people" and that these approaches are able to encompass "any study of a group of people for the purpose of describing their socio-cultural activities and patterns". It involves "descriptive data collection as the basis for interpretation" and "represents a dynamic picture of the way of life of some interacting social group". Moreover, Burns states that, "it is a relevant

method for studying school life" (p. 393). I attempted to understand the sub-culture of the school by spending time within its grounds and in relationship with members of the community, analysing what Burns describes as "the observed patterns of behaviour engaged in by those being studied" (p. 395). An ethnographic approach, according to Burns "accepts that human behaviour occurs within a context" (p. 395). It takes into account "the larger cultural and social landscapes, such as local, national, political or economic processes and values" (p. 394) that influence a learning environment such as the classroom.

The particular activities and patterns of interest in this study were those related to sustainability. However, one of the strengths of an ethnographic approach was that it could take account of the total *context* of the school and its culture, including the beliefs, expectations and motivations of the community, together with the external factors that influenced the school's ecological development. For example, where it was noted that children and staff habitually recycled all recyclable waste materials, this reflected an expectation that was embedded in the school culture and had become second nature to members of the school community.

3.6   Development of Research Framework

One of the research aims was to describe the characteristics of an ecologically sustainable Catholic primary school. I decided that a suitable framework was needed in the data gathering processes to provide descriptors of the elements that could be expected from the literature study to be present in such a school. The framework could also offer benchmarks to be used as standards for describing school development and organizing categories in which to group findings.

For the purpose of designing such a framework, I drew on the existing New South Wales Department of Education and Training policy for sustainable education in schools, titled *Environmental Education Policy for Schools* (2001), introduced and described in Chapter 2. This document informed and resourced the Departmental schools' Sustainable Schools Pilot Program in 2003 and 2004. The document was part of an overall strategy of the Department of Education and Training that formed a direct educational response to the United Nations document *Agenda 21* (1992) . The Foreword to the policy claims:

> The New South Wales Government is a world leader in supporting environmental education in schools, with particular attention being given to *Agenda 21, a global policy outcome of the 1992 Earth Summit* (p. 4).

This environmental education policy offered clear guidelines for schools, including a framework *Steps in Becoming an Environmentally Active School* (p. 20) to guide schools in strategic planning and progressive steps in the implementation of environmental education goals. These steps are listed and described in Chapter 2

I used this framework as a basis for drafting a similar framework for use in Catholic schools. The adapted framework, entitled *Steps in Becoming an Environmentally Active Catholic Primary School,* included an additional key area, "The Religious Dimension", to cater for the religious nature of the Catholic school (See Appendix B).

Necessity for a Framework.

The literature review, through a search of the websites of major governing and administrative system bodies, showed that Catholic school systems in Australia have no overall strategy comparable to the Sustainable Schools initiative in New South Wales and Victoria and the Australian Sustainable Schools Initiative (AuSSI). Neither is there an environmental education policy for Catholic schools that sets out policy to include the specific values associated with the Catholic ethos and clear standards for schools against which they could measure progress towards becoming "ecologically sustainable" Catholic schools. Individual schools are generally dependent on the initiative of local leadership for development of ecological awareness and action within their school communities.

Since this research was undertaken however, Catholic Earthcare Australia has addressed the need for guidelines by publishing *On Holy Ground: An Ecological Vision for Catholic Education in New South Wales* (2006), which does include a framework, which is in turn an adaptation of the framework developed for this research. This later framework is titled *Steps in Becoming an Ecologically Active Catholic School* (p. 26)*.*

Content of the Framework

The adapted framework used in the case study schools to assist in the data collection and analysis retained the titles and much of the content of the original four areas of school life contained in the Department of Education and Training NSW document. These were:

- Whole-School Planning

- Curriculum
- Management of Resources
- Management of School Grounds.

A fifth, additional key area "Religious Dimension" was added in order to make the framework more directly relevant for Catholic schools. This "religious dimension" was also reflected to some extent through the other four areas.

Within the framework, a set of indicators was provided for each of the five areas and for each progressive "Step" in the school's development towards becoming an "environmentally active school". This term is used in the original document from The Department of Education and Training New South Wales and is retained in my adaptation. For the purposes of the research, this term can be used interchangeably with "ecologically sustainable Catholic primary school", the preferred term used in the title of this study.

The indicators, or pointers, also retained many elements from the original framework, but there were a number of additions enabling the framework to reflect the aims of Catholic education. For example, there is a reference in the fifth area, "Development of School Site", to "gardens where children can engage in meditation". This indicator relates to outcomes from Religious Education curricula in Catholic schools that address the need for students in Catholic schools to be offered opportunities for engaging in meditative prayer and appreciation for God's creation.

The fifth area of the adapted framework, the "Religious Dimension" was illustrated through the addition of indicators that were based on some key Catholic ecological concepts and beliefs. For example, in the "Planning" step of the adapted framework, under "Religious Dimension" a descriptor reads, "Planning for staff development includes focus on Creation Theology and Creation Spirituality as a basis for understanding the Church's call from Pope John Paul 11, 1990, to "ecological conversion" (See Appendix B).

In the identification and articulation of these concepts, the Sydney Catholic Education Office's support document *A Sense of the Sacred* (1995, updated in 2006), a document that addressed Catholic values integration within Catholic secondary schools curricula, was a key resource, with its emphasis on the links between faith and ecology. These links were expressed through one of its key concepts, the "Sacramentality of all Creation".

Use of a Framework in Research Methods

The framework, *Steps In Becoming an Environmentally Active Catholic Primary School,* described in the preceding paragraphs, was referred to in the guiding questions for interviewees and was a crucial stimulus document for participants. It also served as a reference point in organising the data gathered, articulating the findings and preparing them for presentation. Further, the framework provided a method to map the case study schools' historical development and to evaluate the schools' progress through several steps towards becoming an "Environmentally Active Catholic School" or in the terms of the research title, "An Ecologically Sustainable Catholic Primary School".

The findings presented in Chapters 4 and 5 from the case study schools rely heavily on this framework in the presentation of the key characteristics identified through the research processes as typical of each school during its journey towards ecological responsibility.

Summary of Framework Areas

The five areas of the adapted framework *Steps In Becoming an Environmentally Active Catholic Primary School* are summarized in the Table which follows:

Whole School Planning

Indicators included in this area were:

- levels of staff awareness

- inclusion of sustainable education goals within the strategic plan

- provision of staff development opportunities

- formation and functioning of an Environmental Management Committee or equivalent

- systematic implementation of the Committee's policy and planning at all levels of the school.

Religious Dimension

Indicators included in this area were:

- an understanding of the concept of "ecological conversion" as defined by Pope John Paul 11 (2001)

- the establishment of clear links between Religious Education and ecological understandings

- the reflection of ecological perspectives in prayer and religious events

- development of staff theological understanding

- opportunities for staff and students to develop an ecological spirituality.

Curriculum

Indicators included in this area were:

- scope and sequence documents for all curriculum areas to map the environmental perspective

- opportunities for learning in, with and about the environment as an essential component of learning programs for all classes

- ensuring that the environmental practices of the school generally support the aims of the curriculum

Management of Resources

Indicators included in this area were:

- planning for the school plant to maximise natural lighting heating and air quality

- monitoring and control of water consumption

- provision for recycling processes

- waste disposal that is environmentally sound

- purchasing plans that are ethically based.

Development of School Site

Indicators included in this area were:

- plans for new and refurbished buildings to employ best environmental theory and practice

- grounds that are well developed and attractive to include shade, gardens and opportunities for students to experience nature

- grounds that provide outdoor opportunities to address curriculum outcomes in ecological awareness and environmental education (See Appendix B).

3.7   Research Methods

Participant Observation

In order to become more immersed in the school and to judge the impact of these key influences on school practice, I planned to adopt the role of "participant observer", described by Burns (2000) as "a direct observer, and a participant in some aspects of school life" (p. 399).

"Participant observation" is defined by Maykut and Moorehouse (1994) as the presence of a researcher "in the natural settings where the phenomenon under study takes place" (p. 72). For example, while observing staff preparing for classroom programming, I would be able to blend in and become a natural part of the setting, engaging staff in conversation about their planning. Extensive field notes would be taken and data collected, for example samples of units of work, to later become the subject of systematic interpretation. After some time spent in participant observation, it would be expected that trends would begin to emerge and I would then be able to compare the data from observations with findings from the planned interviews.

Focus Groups

The focus group was another research method to be used in the study. Morgan (1997) defines a focus group as "a research technique that collects data through group interaction on a topic determined by the researcher" (p 6). He sees definite strengths in this technique, including the power the interviewer or moderator has over the degree of focus of the group in producing data directly related to the topic, the efficiency of the process, and the synergy that can generate and stimulate rich discussion. However, in Morgan's (1997) opinion and experience, there are areas for caution. He separates focus groups as utilised in sociological studies from the marketing research method with which they are commonly associated. He suggests the possibility that a moderator, while guiding the direction of the discussion in a research setting, can also influence that direction. Morgan (1997) points out that the outcomes depend to some extent on such factors as the degree of familiarity of the participants with the material being discussed.

The choice of groups for this research was initially to be determined by their relevance to the research questions but also to some extent by practical considerations of accessibility.

Glaser and Strauss (1967) warn against completely predetermined choices of groups that are highly comparable, as would be desirable in a more positivist study. The main criterion for selection of groups for the development of categories and properties is their "theoretical relevance for furthering the development of emerging categories" (p. 49). Glaser and Strauss (1967) argue that the group interaction process has an advantage over straight data collection techniques because it allows the researcher to

control the refinement of key categories and properties and the progressive development of theory.

In this research, the focus group method was to be used in the context of a staff meeting at Newman School. In addition to the structured focus group, there were to be a number of informal opportunities to engage in conversation with groups of staff about school development and these were to supplement the interviews. The composition and style of these groups was to be largely a matter of convenience for the respective schools with the commitments they had at the time of the field work.

An introductory stimulus briefing was to be given about the research intention before each group process in an effort to ensure participants started with a common understanding of the research topic and the key research questions. The stimulus framework *Steps in Becoming an Environmentally Active Catholic Primary School* (See Appendix B) was given to each group member prior to the interviews in both schools and at the beginning of the focus group at Newman School.

In addition to the framework, a short clip from the Catholic Earthcare Australia (2002) video *The Garden Planet* was to be used as stimulus material for the focus groups and the interviews. The video would introduce the concept, "ecological conversion", introduced by Pope John Paul 11 (1990) in his New Year's Day Message, as this is a specifically Catholic concept that is foundational to this research. The concept recurs in Church documentation and is relevant for schools in developing an understanding of their mission.

During the staff meeting at Newman School, there would be an opportunity after the initial briefing and stimulus for staff to work in small groups and present general feedback related to the three key questions:

1. What have been the key factors that have stimulated and supported the development of the school in its commitment to environmental education and sustainable development?

2. What have been the blockages to this? And how were they overcome?

3. Where would you situate your school within the chart "Steps Towards Becoming an Environmentally Active Catholic School?" (See Appendix B)

Notes were to be taken during the course of the feedback from the group processes and the framework *Steps Towards becoming an Environmentally Active Catholic Primary School*. (See Appendix B) annotated as group leaders gave feedback on their perception of where the school's development would be situated within the framework.

Data Collection - "Slices Of Data"

Glaser and Strauss (1967) promote a form of data collection they term "slices of data" (p. 65), which is a method that can supplement the main strategies of collection such as interviews. These "slices" can include data from informal interviews, conversations, collection of documents or anecdotal reports. They must be closely compared with the findings from the main method of research and balanced within the whole collection of data so that the overall validity of the research is not called into question. The gathering of supplementary data was particularly possible for the study of St Mary's, since I was familiar with the school community and was in a position to collect such

data during regular school visits or from the Principal who was willing to provide this level of support.

Data to be collected included school and system policy documents that guided school practice, records of school celebrations, teachers' work programs recording environmental education implementation, multi-media presentations and photographs of student work samples in environmental education. These "slices of data" were to be collected through engagement as a "participant observer", both during the formal and informal periods of the research.

Observation within the natural setting had been a continuing integral part of my work within the group of Catholic primary schools, which included St Mary's, and these continuing observations, including the experience of the Education Audit processes in 2003, had inspired me to undertake the study and to identify the school as suitable as a case study school. Examples of opportunities to observe the school included informal interviews, staff and parent meetings, conversations, classroom visits, assemblies, school cultural events and rituals between 2001 and 2004.

In the case of Newman School, which was remote from my usual place of work, it was not possible to plan visits outside the nominated time for the research. Participant Observation was to be confined to a week of field work in November 2004.

Validation by Triangulation

So that the data gathered would prove reliable, more than one form of data gathering is needed in qualitative research. The various methods of data collection that were to be

utilised- interviews and focus groups, collection of slices of data, informal interviews and participant observation, together with the evidence analysis that followed, would allow for what Burns (2000) refers to as "converging lines of inquiry" through "triangulation" (p. 419). He defines triangulation as "the use of two or more methods of data collection in the study of some aspect of human behaviour" (p. 419). "This (triangulation) prevents the researcher from accepting too readily the validity of initial impressions" (p. 419). For example, it would be important to observe whether teaching programs in St Mary's matched the rhetoric of the school's environmental school policy. Interviews with teachers and observations of student work samples corroborated the claims made in the policy statements collected.

Further validation of data collection occurred through sending back the typed transcripts of the interviews to the interviewees for checking. This process opened up further conversation about the interview questions with additional information that added new light and further refined the data. By way of example, the former Principal of Newman School, in the course of a later conversation that took place after the formal interviews, spoke about a Diocesan Environmental Committee that was being formed and would link with other related existing committees [19 Feb. 2005].

Table 3.1 summarises the various forms of data collection employed in this study.

Table 3.1   *Summary of Methods for Data Gathering*

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1.   **Interviews with School Personnel**
        •Principal
        •Assistant Principal
        •Relevant staff integral to the school's commitment to ecological education.

                        Interview Schedule: – Sample Questions

                -What have been the key factors that have stimulated and supported the development of your school in its commitment to environmental education and sustainable development?

-What have been the blockages to this? And how were they overcome?

-Where would you situate your school within the chart *Steps Towards Becoming an Environmentally Active Catholic School?* (See Appendix B)

2.   **Evidence Collection**
        Samples of documentation eg. Policy documents, classroom programs, student samples of work.

3.   **Focus Group**
        Process. Staff Meeting.
        Stimulus:- *The Garden Planet* video extract.
        Introduction and explanation of framework *Steps Towards Becoming an Environmentally active Catholic School* (See Appendix B)
        Discussion in groups around the questions:
                -What have been the key factors that have stimulated and supported the development of your school in its commitment to environmental education and sustainable development?

                -What have been the blockages to this? And how were they overcome?

                -Where would you situate your school within the chart *Steps Towards Becoming an Environmentally Active Catholic School? (See Appendix B)*

4.   **Participant Observation**
        Presence at assembly, classes, meetings, playground duty, gardens

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3.8   Data Analysis and Interpretation

Coding Data

During the field work, I stored the observations made in a series of files in a laptop computer kept available at all times. As the interviews were written up, I isolated key categories and their accompanying properties as they emerged from the study. I recognised that it was important to build in some time for processing the information collected and arranging data into categories after each day spent in the field.

I planned to codify and analyse the data collected from the interviews, the group processes and the informal processes to assist in the development of emerging theory. Glaser and Strauss (1967) favour the "constant comparative method" whereby the researcher "is concerned with generating and plausibly suggesting (but not provisionally testing) many categories, properties, and hypotheses about general

problems" (p. 104). They claim that no proof is involved as in a quantitative framework, but the validity of the research is assured by the constant comparison and refinement of categories based on data collected, in order to reach saturation. In their later work Strauss and Corbin (1998) define coding and its various levels and categories as "concepts, derived from data that stand for phenomena" (p. 114).

These categories can also be derived from literature sources as well as through the research methods. I planned to employ the five key areas (Whole-School Planning, Religious Dimension, Curriculum, Management of Resources and Management of School Grounds) of the adapted framework, *Steps In Becoming an Environmentally Active Catholic Primary School,* as organizing categories in analysing and reporting the data in Chapters 4 and 5.

To assist in this analysis of data, I planned to set up a system of codes or emerging themes with a lettering or tagging system for easy reference and classification. Miles and Huberman (1994) define the term "codes" as it is used in the literature on data analysis:

> Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study. Codes usually are attached to 'chunks' of varying size- words, phrases, sentences or whole paragraphs, connected or unconnected to a specific setting (p. 56).

In typing up the notes taken during field work, I devised a method to identify within the body of the text what seemed to be emerging key concepts, and then progressively, to identify the key categories with associated properties that were emerging from the data collected during each day's field work from the interviews, focus groups, or other methods. In the data analysis process, some key factors emerged that supported school development and some factors emerged that were barriers. Also emerging were some

recurring factors that I identified as key characteristics of the schools in terms of their ecological commitment.

The key factors designated by codes during the data collection and analysis are illustrated in the following examples from the research. Quality of Leadership (a supporting factor) was designated as (SQL) whenever it occurred in interviews or other data collection. Some properties associated within this broad category were Quality Principal Leadership (SQPL) and Quality Teacher Leadership (SQTL). Professional Development (SPD), System Support (SSS) and Availability of Resources (SAR) were some further codes that were applied to key categories emerging. In typing up the text, whenever a new category was identified or an existing one reappeared, the coding letters were typed within the text in colour (red for Supporting Categories and purple for Barrier Categories.) This allowed for easy visual identification during analysis. (See Appendix G).

Table 3.2   *Codification of Factors*

Supportive Factors		**Barriers**	
FPL	Principal Leadership	BSI	Sustainability of Program
FMES	Maximising Existing Structures	BLTI	Lack of Teacher Initiative
FSH	Significant Helper	BCR	Community Resistance
FCL	Curriculum Links	BHWI	Hard Work Involved
FTO	Taking Ownership	BTR	Time Restrictions
FJEN	Joy in Experiencing Nature	BFC	Financial Constraints
FPS	Parent Support	BLPL	Lack of Principal Leadership
FRD	Religious Dimension	BII	Industrial Issues
FEC	Ecological Center	BLK	Lack of Knowledge
FPD	Professional Development		
FST	Spirituality for Teachers		
FSLC	Supportive Local Council and Community		
FDS	Diocesan Support (Including Bishop)		
FSS	System Support		
FLNE	Local Natural Environment		
FTD	Teacher Dedication		
FWA	Winning an Award		
FLTC	Long Term Commitment		
FHL	Holistic Learning		
FPP	Practicality of Project		
FSS	System Support (including Director)		
FGM	Good Management		

In the course of the data gathering, as more text was gathered, it became obvious that some of the categories were not accurate or representative, and these were modified or others invented. This process of analysis was consistent with an emergent model of research as described by Glaser and Strauss (1967). Gradually I was able to build a recurring group of categories without new ones emerging so that a point of saturation was attained within the two case studies. From the collection of data, and its analysis and synthesis, a picture became clearer of what would characterise an ecologically sustainable Catholic primary school, what conditions would be conducive to the development of such a school and what factors would form barriers to the development of such a school.

An initial list of concepts emerged from data gathering in Newman School during the week in the field. The codes applied for each when writing up of the transcripts. To illustrate the coding process it is applied below to a section of the interview at Newman with a lead teacher. This person had been with the school since the beginning of its ecological development. The testimony was coded for analysis purposes as shown below using the codes set out in Table 3.2.

> The Frog pond was high maintenance and hard work to keep going. (BHWI- Hard Work Involved). It was important to show the children the life cycle of the frog but it had to be filled in. It was hard to sustain. (BLTI -Lack of Teacher Interest/Initiative)………… (another teacher) is planning to set up a frog pond in her new school. She sees it as vital, even if difficult. (BSI-Sustainability Of Initiatives). It's a difficulty having someone to continue when you're gone. It is important to start with the young children- Yr 2,3,4 are very interested. Older ones are into the technological ways eg. Water conservation is a good starting point for them. The children designed a badge as a part of Eco-Fest, (FMES- Maximizing External Support) run annually by the City Council. The school ran a stall, and gave out seeds at the festival (miniature Alovere).

(FSH -Significant Helper). A parent who was doing a thesis set up a butterfly garden for one of the years. Lots of parent involvement. Retired parent came to help. (FPS Parent Support)

(See Appendix G for an example of a full transcript.)

To analyse the relative strength of these factors (concepts), the number of times they were mentioned in the course of the data gathering processes was considered and some key themes or "Categories" as described by Glasser and Strauss (1967) in the language of Grounded Theory, were identified, together with their associated sub-themes or "Properties", again in the language of Grounded Theory.

Some of the key factors that I had anticipated to emerge, for example, strength of leadership, cohesive staff, shared vision for a better future, an integrated curriculum that uses all key learning areas as a vehicle for environmental education, a uniquely beautiful natural school site and local context that inspired commitment, did in fact emerge as reported in Chapters 4 and 5.

Table 3.3 gives an example of the formation of categories in the progressive data analysis. The categories are the key factors identified as reoccurring strongly from raw data collection and seen as having positively supported the development of Newman School as an environmentally active Catholic school.

Analysis Matrix

Strauss and Corbin (1998) suggest the use of a technique they term the "Matrix", a diagrammatic representation to assist in analysis of the interplay of the various factors discovered in data collection, including "micro" factors, that is, ones that are narrow in scope and possible impact, and "macro" factors, that is factors that are wide in scope and possible impact. The matrix is a tool to help build "a systematic, logical and

integrated account, which includes specifying the nature of relationships between significant events and phenomena" (p. 182). Figure 4.1 is an example of this tool in use to make the connections between key concepts and factors that affect school development. These factors are identified and reported through the findings in Chapters 4 and 5.

Table 3.3   *Sample of Categories and Properties Identified from Data Analysis at Newman School*

Research Data For Newman School

Category	Associated Properties
Quality of Leadership (SQL)	Principal leadership Executive leadership Teacher leadership Parent leadership Student leadership Diocesan leadership
External Support Structures (SESS)	Diocesan leadership Corporate awards Special events, eg. Launch of Reef Statement Local volunteers Local Council State and Federal Government initiatives
The Natural Environment (SNE)	Availability of land on campus Proximity to places of natural beauty (The Great Barrier Reef and the Catholic Environment Centre)
Internal Support Structures (SISS)	Staff motivation and dedication Good resource management Presence of key teachers as leaders History of environmental commitment Strategic planning
Curriculum Mandate (SCM)	Religious Education curriculum Mandated syllabus documents in Science and Social Sciences (all support environmental outcomes)

Framework Used to Develop Research Categories

Strauss and Corbin (1998), in discussing formation of categories within Grounded Theory, encourage a measure of creativity in the researcher. They point out that

sometimes "Another source of concepts is the literature" (p. 115) and that if the concepts from literature are "particularly strong" and also "have proven relevance by emerging from the data as well" (p. 115), they may serve as category names. However, Strauss and Corbin also issue a caution in doing this in case "bias" (p. 115) is introduced into the interpretation of data.

I decided to take heed of this caution, but to proceed to use the key concepts of the developed framework as organizing categories. Chapters 4 and 5 demonstrate that this is warranted from the data collection which falls well within the five areas of Whole School Management, Religious Dimension, Curriculum, Management of Resources and Development of School Site. The methods used in collection and analysis of data are summarised in Table 3.4.

Table 3.4   *Summary of Methods for Data Analysis*

Progressive Data Analysis

- Preparation of written transcripts
- Examination of collected documents
- Coding of concepts within data collected
- Identification of categories and properties
- Development of matrix for connecting concepts
    and categories
- Formulation of theory and conclusions

3.10   Limitations and De-Limitations of the Research

The scope of this project was limited to research within two Australian case study schools that form part of two separate Catholic systems of primary schools, one in

urban New South Wales and the other in Queensland. Limitations of time and the rarity of suitable Catholic case study schools available as suitable subjects for research, precluded the feasibility of extending the study beyond the two chosen schools. However, even though these limitations presented challenges, I considered the choice to work within the stated constraints to be appropriate because it enabled me to focus on and compare the two schools and yet justifiably anticipate that the findings could be of relevance to Catholic primary schools in general. Most Catholic systemic schools (and indeed non-systemic Catholic schools) share many characteristics and curriculum objectives in common with the schools that formed the subject of this study. All school systems share a national curriculum framework, upon which the state curricula, including those of New South Wales and Queensland, are based. All schools are required to use state curricula or to devise local curricula that are faithful to each of the elements of the mandated government documents. The assumption of governments is that environmental education is a priority within these curricula and within the total life of schools.

Further, all schools worldwide have been invited and urged through the United Nations to participate as educating communities in implementing the aims of Chapter 36 of the UN document Agenda 21 (1992), which includes what Tilbury, Coleman and Garlick (2005) describe as a "comprehensive blueprint for nations who are starting to make the transition to sustainability" and which "accords special significance to the role of education as the most effective means society possesses for confronting the challenges of the future" (p. 85). The United Nations International Decade for Education for Sustainable Development (2005-2014) also offers an invitation that applies equally and urgently to all schools. Hence, it is incumbent on all schools to

develop educational programs that empower students to respond to the ecological crisis. Schools need suitable models to support them in doing this and I believe the aim of this study to provide two such models is significant for any Catholic school system or individual primary school.

The study may be of some interest to non-religious schools, but this interest would be limited by the specifically Catholic context and ethos that is foundational to this study. However, the research is likely to be of interest to religious schools beyond the Catholic tradition, Christian schools in particular as they share to a great extent a commitment to holistic education, based on Christian values. Whether there is any interest beyond Catholic school systems and schools does not have an essential bearing on the value of this study, which is both timely and relevant within the constraints of its Catholic educational context. However, it is worth noting that in conversation with colleagues from outside the Catholic educational context during my attendance at seminars, conferences and other shared meetings, I have often noted the enthusiasm these colleagues have for developments in Education for Sustainability in Catholic schools as well as in schools generally. This is possibly because there has been a longer tradition of general interest in research and implementation related to Education for Sustainability in the so-called secular universities and government school systems, as was demonstrated in the research literature introduced in Chapter 2. I have frequently found myself to be one of a very small minority of Catholic educators present for example at events organised by The Gould League, the various government bodies that are responsible for education or the Australian Association for Environmental Education (AAEE). The tardiness of Catholic systems to become involved in these wider initiatives may in fact influence whether they would have an

interest in a study such as mine and be prepared to enter into dialogue about Education for Sustainability in a Catholic school context.

In Chapters 4 and 5 the findings from the two case studies are presented and conclusions drawn for each of the two schools in terms of:

- the outstanding characteristics of each school as an example of a school developing towards becoming "an ecologically sustainable Catholic primary school."

- the factors that supported or created barriers to that development.

Chapter 4. RESEARCH FINDINGS AND ANALYSIS:

ST MARY'S NEW SOUTH WALES

4.1 Introduction

This chapter presents the findings from research undertaken in the first case study school, St Mary's in New South Wales.

The aim of the research as stated in Chapter 1, was to study how a Catholic primary school can develop towards becoming an ecologically sustainable school, termed by Sterling (2001) a "sustainable school", or according to the Department of Education and Training NSW Environment Education Policy (2001) "an environmentally active school".

St Mary's was a Catholic primary school that had been acknowledged by Catholic Education Office authorities as a metropolitan school committed to developing a holistic culture that would include high quality environmental commitment and practice.

The research intention is to describe the characteristics of such a school in terms of each of the identified essential areas of school life. In addition, it is to identify within the specific school setting the key factors that supported development towards ecological sustainability and those factors that presented barriers to that development. The school had been implementing its ecological plans for eighteen months at the time the research began.

4.2   Research Methods for this Case Study

The research was qualitative as described in Chapter 3. The time I spent as an ethnographer during the research period provided rich opportunities for participant observation and collection of data at every level of the school. The methods employed in studying St Mary's are detailed in the summary found in Table 3.1 They included Interviews, Shared Interviews (where two participants were interviewed together), Focus Groups, Participant Observation, Collection of Documentation, Principal Narratives and Data Analysis.

During the interviews and focus groups at St Mary's, the framework I had adapted for the purposes of the research *Steps In Becoming an Environmentally Active Catholic Primary School* (see Appendix B) was used both as a stimulus for guiding discussion and a tool for organizing the data collection.

For purposes of privacy and ease of referral, teachers interviewed or engaged in conversation in the course of the data gathering process are referred to in the presentation of findings through pseudonyms, summarised in the following table:

Table 4.1   *Code for Interviewees' Names- St Mary's School*

Interviewee Code Name

Principal	Isabelle
Assistant Principal	Marie
Teacher 1	Jane
Teacher 2	Julie
Librarian	Sharon
Aboriginal Advisor from Catholic Education Office	Tessa
Education Officer from Mercy Foundation	Janine

St Mary's Findings: Overview

The presentation of findings addressed each of the two case study schools separately, but in each case, the investigative pathway could be reported utilizing the same major organizational headings summarized in the following table.

Table 4.2   *Summary of Steps in Presentation of Findings*

Case Study- St Mary's School/ Newman School

- Historical Development towards Environmental Consciousness

- Characteristics of the School Culture

- Supportive Factors in School Development

- Barriers to Development

- Summary

4.3   Historical Development of St Mary's

Strategic Planning

At St Mary's, the initial impetus for thinking and planning towards sustainable education began in 2000, when a new Principal was appointed. The Strategic Management Plan 2004-2008 (see Appendix C for relevant sections of this plan), formalised processes for planning and implementation. This plan was the product of a School Review and Development process, lead by the Principal and facilitated by the Catholic Education Office. Staff collaboration in the process was high and parents were consulted through surveys and interviews. I was the Educational Consultant facilitating this process with the Principal and was able to observe the developing commitment to Education for Sustainability.

In the course of the Review, staff had named environmental education as one of five key areas of their Mission for continued development during the successive five years of the implementation of the school's strategic plan. This area was titled "Valuing the Sacredness of all Creation", a visible clue pointing towards the religious inspiration that underpinned the school's ecological commitment (See Appendix C).

From the Mission Statement, included within the Strategic Management Plan, Priority Areas were developed. Priority D concerned "Environment" and had five associated goals as follows:

1. Opportunities exist for staff to develop their knowledge and skills regarding environmental issues and practices.

2. Opportunities exist to promote parents' understanding of the school's focus on environmental issues and practices.

3. Strategies are identified annually for developing students' knowledge, values and skills as stewards of God's creation.

4. A plan exists to develop the playground as a space for students to experience the wonder of creation and to learn about environmental practice.

5. An environmental management plan exists to guide responsible stewardship of resources (water, electricity, paper, waste disposal).

    (See Appendix C.)

These long term goals for development were addressed through the corresponding practical goals and implementation strategies that were written into the school's Annual Plan. The goals from the 2004 Annual Plan were:

- To develop a plan that would enable staff to develop their knowledge and skills regarding environmental issues and practices and

- To develop a plan that would enable the students to experience the wonder of creation and learn about environmental practice (See Appendix C for relevant sections).

The 2005 Annual Plan included strategies for the implementation of Goal 1 cited above. These included plans for development of better staff understanding of recycling, and composting, as well as environmental resources to support classroom lessons, and afternoon "Nature" sessions. In support of Goal 2 cited above, strategies were planned that included a parent presentation from the environment club and regular environmental inserts in the school newsletter. Strategies to support Goal 3, included work within the environmental committee to include a "religious education perspective into environmental care in the school" (See Appendix C).

The Shared Interview with the Principal (Isabelle) and Assistant Principal (Marie) [20 Oct. 2004], was planned to elicit responses to the three planned research questions.

- *What have been the key factors that have stimulated and supported the development of St Mary's School in its commitment to environmental education and sustainable development?*

- *What have been the blockages to this? And how were they overcome?*

- *Where would you situate your school within the chart "Steps towards Becoming an Environmentally Active Catholic School?"* (See Appendix B)

The interview provided a picture of the school's development between 2000 and 2004 which unfolded as an historical narrative.

The Culture of Peace

Isabelle noted in the interview that "The school is embedded within a wider framework, the Culture of Peace, which is foundational to all human development and to any environmental initiatives" [Principal Interview 20 October, 2004].   She went on to explain that at the beginning of her principalship at St Mary's she experienced a school that was in great need of development, describing it as:

> Suffering fragmentation of the community, isolation of families, families marginalised, a range of emotions were being expressed, including some extreme aggression, and there were indicators of racism. There were many changing cultures represented, learning needs of children were great, there were high numbers of special education children. Playground interactions needed to be addressed, the total environment needed to be integrated within a sound framework that would allow educational focus [Principal and Assistant Principal Interview, 20 Oct. 2004].

She outlined the school's historical development towards addressing these problems in the following words: "The journey towards a Culture of Peace started in response to school leaders' assessment of the school's needs in 2000. The former Assistant Principal had gathered research about school development" [Principal Interview October 20, 2004].

Hence, in the first two years of her principalship (2000 and 2001), the primary and immediate need for school development lay, not in explicit environmental education as such, but in establishing a whole-school environment conducive to human development and to learning.   Isabelle said that, "It was obvious before the community could look out towards others (including the earth), it needed to model right relationships in the day-to-day attitudes and behaviours of staff and children" [20 Oct. 2004].

Theological Understandings

These convictions of the Principal were partly inspired by her studies in theology, particularly Sacramental Theology. She stated, "I was studying theology, drawn to do this as I realized that if the community were to become a genuine Eucharistic community, action form harmony and mutual respect would stem from the dimension of faith. How could relationships as a community be formed?" [Principal Interview Oct. 20, 2004]

Through this study, she said she became aware that if the school were to become what she termed "a truly Eucharistic community of inclusion for all" it would need to "work to overcome racism and violence and to create harmony and oneness of purpose". Isabelle recounted that,

> There were queues in the foyer of unhappy children, stereotypes were applied, and attitudes needed to be challenged. It was obvious that before the community could look out for others, it needed to model right relationships in the day-to-day attitudes and behaviours of staff and children. This was very confronting for staff. The definition of 'Conversion' needed to be widened to include a reconciling community, an icon of 'the eternal banquet', always a space for another person at the banquet, drawing people into the community. The school was facing the fact that people were being excluded. [Principal Interview, 20 Oct. 2004].

Isabelle spoke about the significance for herself and increasingly for her staff of the fifteenth century Byzantine icon "Holy Trinity" by Andrei Rublev. This image shows the three persons of the Trinity seated around a table. There is an empty place at the centre foreground of the picture and this invites another (others) into the "eternal banquet". As stated above, the school was facing the fact that there were people being excluded. On a social level, Isabelle reported that they were "overcoming disadvantage, assisting families who were poor, supporting them to stay within the

system" and inviting them to be part of an "inclusive community". She said "the icon became an important symbol for staff development and understanding of the nature of the school community" [Principal Interview 20 October, 2004].

In a later conversation, Isabelle expressed a further interpretation of the icon from an ecological perspective. She said she believed the table in the icon can become the "table of Creation itself" [3 Feb. 2005]. She said further that it was significant also for her that the staff had "presented me at my farewell from St Mary's with a framed version of this icon in honour of the Culture of Peace and harmony that we had developed together in our school" [Principal Interview 3 Feb. 2005].

The introduction of Harmony Days was seen as a way to overcome discrimination, and included Aboriginal reconciliation, minority rights, and respect for individual cultural groups so that these many groups could maintain their identity. The school began working on a model for the development of a Culture of Peace to address the behavioural conflict that staff and students were experiencing. As Isabelle observed:

> The introduction of Harmony Days overcame the discrimination, and included Aboriginal reconciliation, minority rights, and respect for individual cultural groups so that they could maintain their identity. The school began working for peace in the midst of so much cultural conflict [Principal Interview 20 October, 2004].

She also noted in this interview that she had attended an inspiring address (2001) by Dr Toh Swee Hin, winner of the 2001 UNESCO Prize for Peace. His citation, found on the *Global, Environmental and Outdoor Education Council* (GEOEC) website included mention of "the candidate's exceptional contribution to the promotion of the ideals of peace and non-violence and for his practical action in favour of peace

through the education of a wide range of social actors." Isabelle said that speech had centered on "building cultures of peace and education for non-violence" [Noted in an informal conversation with me during morning tea 21 October, 2004]. She said it left a strong impression on her and had formed one of the bases for the conceptual development of the "policy and practice for the Culture of Peace at St Mary's" [conversation recorded in field notes 21 October, 2004]. These conceptual understandings included the concepts of "reconciliation and the integrity of creation, including respect for all cultures, for each other and for the earth" [noted in conversation with the Principal 21 October, 2004].

These understandings about the links between human peace and the integrity of creation are congruent with the understandings expressed in the writings of Pope John Paul 11 (1990), explored in Chapter 2. However, the research evidence received at St Mary's did not include any direct reference to this Papal source.

Isabelle explained that the foundation document from Catholic Education Office Sydney, *A Sense of the Sacred* (1996), which includes a framework of concepts and values that express the Catholic tradition, had assisted her in "articulating and describing these values in her leadership of forums for staff development" [noted in a conversation with the Principal 21 October, 2004]. Some of the relevant key concepts included Reconciliation, Communion, Human Dignity and the Sacramentality of All Creation. The website (2006) includes two key values, a sense of wonder, that is "an ability to marvel at the complexity of the created world" and stewardship that is "respecting and sharing the resources of the earth, since we are all part of the community of creation". I was present at the opening address [12 June, 2003], given

by the Principal to staff at the beginning of the school review process when she referred to the body of Catholic Social Teaching and the values that are articulated in *A Sense of the Sacred* which are drawn from that teaching.

It was noted by Isabelle in her interview that:

> Looking for a solution outside your own community is not the way to go. It has to happen at the local level. You need to walk the journey yourself, connect with others and don't expect others to come in and provide the solution. The power is within the local community, with support. We need to think and act smarter [Principal Interview 20 Oct. 2004].

By late 2001, school documentation, including the newsletter and the website, and visible symbols collected and observed during my school visits, reflected the school's commitment to the Culture of Peace. Sacred spaces in the school foyer, prepared by teachers and their classes, featured displays on this theme, staff development centred on it, the school discipline policy was founded on principles of peaceful and respectful living, and every classroom displayed the student-devised Bill of Rights that spelled out the shared understandings of the Culture of Peace. This document was on display in every classroom I visited [22 October, 2004] and found on the school website [retrieved 25 October, 2004). (The school website is not included in references in order to maintain the anonymity of the school for purposes of the research). The wording of the Bill of Rights was as follows:

1.   We have the right to feel safe and happy

2.   We have the right to feel proud of our culture and identity

3.   We have the right to be respected and to respect others who are from different cultures

4.   We have the right to learn in a place where racism is not tolerated

5.   We have the right to recognise, accept and value cultures equally

6.   We have the right to have racist behaviour investigated promptly

7. We have the right to live in peace and harmony

A plaque at the school entrance [which I saw on numerous school visits and noted in field notes 23 October, 2004], acknowledged the traditional Indigenous owners of the land on which the school was built. The Regional Catholic schools Indigenous Adviser, Tessa, worked closely with staff and children in both the preparation of the plaque and children's art works through a series of lessons to develop an understanding of Indigenous relationships to land [discussed in conversion with me at the regional Catholic Education Office 4 July, 2003].

Isabelle stated in her interview that she was committed to improving the quality of the school and that, "These little children deserve to experience an environment that is both beautiful and inspiring and therefore conducive to learning" [20 Oct, 2004]. The floral potted gardens had been cultivated and cared for on each of the school verandas since 2001 and the colourful window boxes that greeted visitors from the second storey windows of the library were testimony to this commitment and were noted in my field notes as a visible sign of the school's efforts to improve the environment and make it attractive for children and staff [school visit 23 October, 2004].

Plan for Cultural Harmony

Isabelle explained in her initial interview [20 October, 2004] that each year from 2002 to 2004, the Executive Team has prepared school documentation which included a planning document entitled, "School Plan for Cultural Harmony". This was a development framework that progressively addressed the following Areas for Action,

as illustrated in the "Plan for Cultural Harmony 2004", collected by me for the purposes of this research and set out in the table below.

Table 4.3   *St Mary's Developmental Framework*

- Curriculum
- Staff Development
- Celebrations
- Policy
- Parents
- Whole School Practice and Procedures
- Behaviour Management
- School Climate
- Teaching and Learning Practice. (See Appendix D).

Documents collected indicated that in 2002, there were not yet any explicit references to environmental education or sustainability policy or practices reflected in the school's Culture of Peace framework. By 2004, the Areas for Action of the School Plan for Cultural Harmony (See Appendix D) had been further developed to include the following examples of ecological action:

- The development of the Indigenous (Peace) Garden

- The Year 6 Environmental Camp

- Celebration of the Feast of St Francis of Assisi Patron of Ecology

- Participation in Clean Up Australia

- Participation in Waste Watchers

- Water usage audit.

This Plan expressed the integration of environmental policy and awareness within the overall Culture of Peace.

In 2003, St Mary's was awarded a National Schools Award for its peace program. This award was referred to in the New South Wales Parliament by the Local Member, Linda Burney, who said, "Today I pay tribute to the staff, the parents and, most importantly, the wonderful students of St Mary's primary school at (name withheld). St Mary's was the recipient of a prestigious national award for values in education for its Building Cultural Harmony—from Racism to Inclusion project" [20 November, 2003]. This was a triumph of school development for the whole community.

Environmental Management Committee

Isabelle explained in a later supplementary interview [3 March, 2005] that the school's initiatives described above were the practical work of the Environmental Management Committee, a learning team of teachers that had been developing since the conclusion of the School Review and Development Process. As reported in the same interview [3 February, 2005], Isabelle considered this initiative to be "consistent with the processes being put in place to sustain the Culture of Peace", linked to the total work of the curriculum teams. She said she believed further, that staff who had been involved in leadership of the environmental strategy could see that their work was "directly implementing the environmental intentions of the Strategic Management Plan and the annual goals developed through the associated Annual School Plan" [3 February, 2005].

Practical Expressions of Environmental Education

Between 2001 and 2004 I attended several functions that reflected the school's growing ecological awareness and educational practice during these earlier years. During The National Aboriginal and Islander Day of Celebration (NAIDOC) Week in

July 2002, the school featured a report of its celebrations on the school website. The whole-school ritual enabled the children, staff and parents to make connections about the sacredness of the Australian land and the appropriate responses that can be made to live in harmony with the land and the traditional custodians. Through their art works displayed during the 2003 Art Show [noted in field notes 8 August, 2003], to which I was invited, children had expressed their appreciation and love for the earth, the species of living things and their lived responses to the environment through drawings and paintings. There were displays of Aboriginal artists' work, including an artefact made by the high profile Kimberly artist, Rover Thomas, which Sharon, the school librarian, [in an informal conversation 8 August, 2003] told me was "loaned by one of the staff" and I noted had stimulated lively discussion at staff level about the significance of traditional art work in representing the sacredness of the land and Aboriginal relationship to it [conversation during lunch with staff, 8 August, 2003].

4.5   Holistic Learning

In this evolving school story, Isabelle shared with me during regular professional visits, her belief that there were various elements at work on many levels in the school's development towards becoming a Culture of Peace and a holistic educational environment. For example, in a pre-planning meeting for the educational audit in 2004, she said she believed passionately that "the child is at the centre of school's planning" and that "the environment and structures are provided for learning to progressively move from self-awareness to awareness of others (social) and of the earth (global)". Each level "intersects and contributes to the pathway towards becoming a holistic learning environment" [12 Mar 2004]. This is illustrated in Figure 4.1, based on a similar figure found on the New South Wales Sustainable Schools

Program website, where levels of influence move progressively outwards from the individual at the centre towards the school community and eventually influence global consciousness.

Figure 4.1   *Development of Ecological Awareness*
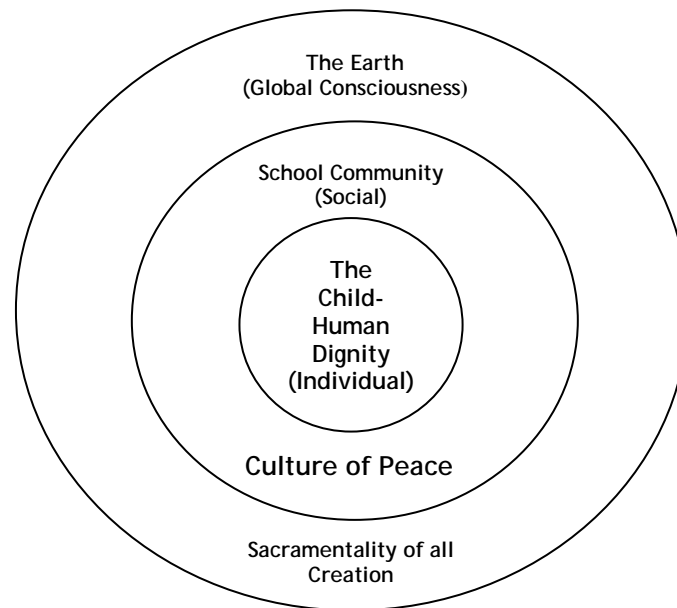
Figure 4.1 was developed to summarise the Principal's conviction about the nature of a child-centred pedagogy that can enable the child to gradually come to understand themselves and others and to respect the earth. St Mary's provided a living example of this connectedness, both in its intention and its daily learning programs. The descriptions of the school's developing culture in the following section further testify to this.

4.6   The Culture of the School

Introduction

The research was undertaken mainly in late 2004, and a comprehensive picture of school culture was developed through the Principal and Assistant Principal

Interviews, Research Observation during periods spent in the school, Principal Narratives collected during several school visits and collection and analysis of current school documentation.

As referred to earlier in this chapter, prior to the shared interview with the Principal and Assistant Principal, the framework *Steps in Becoming an Environmentally Active Catholic Primary School* (See Appendix B) had been made available for their consideration. One of the questions posed as a focus for the shared interview was:

- Where would you situate your school within the framework: *Steps Towards Becoming an Environmentally Active Catholic School?* (See Appendix B).

Marie, the Assistant Principal responded, "The school is well on the way with these steps and the framework provides a guide for us to work towards" [Assistant Principal Interview 20 October 2004]. She gave examples, cited in the following sections, of the school's current sustainability education strategies. These strategies were based on the current Strategic Management Plan, Section D, entitled, *We are One with Creation*, referred to earlier in this chapter. Section D had an overarching goal for 2005:

A plan exists to develop the playground as a space for students to experience the wonder of creation and learn about environmental practice". Accompanying this goal were what the plan referred to as the associated "Learning Needs of the Child":

- To foster a love of the environment
- To build an increased awareness of environmental issues
  (See Appendix C).

Marie's understanding was that the practical strategies to be put in place were a "direct response to the goals of the Annual Plan 2005" [Assistant Principal Interview 20 October, 2004].

For the purposes of this research, each of the strategies developed as a result of long-term and annual planning and reported in the following sections, were categorised within one of the five areas outlined in the research framework-:

1. Whole School Planning

2. The Religious Dimension

3. Curriculum

4. Management of Resources

5. Development of the School Grounds.

This enabled me to systematically identify and situate the various aspects of school life that had contributed towards ecological development.

Area One - Whole School Planning

Marie stated [Assistant Principal Interview 20 October, 2004] that the first area of the framework, Whole School Planning, had been given impetus and inspiration through the school's Mission Statement (See Appendix C for inclusion of this Statement within the Strategic Management Plan). It read:

Our Mission - Why we exist

Staff, families and parish share a commitment to our students by:

•   Educating children in the Catholic faith

•   Leading children to know they are loved by God

•   Inspiring children to achieve excellence in education

- Respecting the dignity and uniqueness of each child

- Building a just, peaceful and harmonious community

- Valuing the sacredness of all creation

    (See Appendix C).

The final statement directly relates to education for ecological sustainability, but sits within the overall context of the school's vision for Catholic education. Each of the key points can be related to the holistic pedagogy illustrated in Figure 4.1 above. This Mission Statement underpinned all school initiatives.

The Strategic Management Plan drawn up by the staff as a result of the School Review and Development process of 2003, included the Mission Statement within its text, and named seven key areas for development (See Appendix C). One of these key areas was "Environment- We are one with creation". It was unusual for a school in the Catholic diocesan system of schools to which St Mary's belonged, to place ecological sustainability so squarely at the centre of its strategic planning. The environmental goals for the 2004 Annual Plan, described earlier in this chapter, were derived from the Strategic Plan 2004-2008 and were to be the first of a series of goals to be addressed within the life of the plan as it unfolded year by year until another review took place some time prior to the expiry of the plan in 2008.

Marie explained in her interview that, "This year (2004) we have implemented our goals through several strategies" [Assistant Principal Interview 20 October, 2004]. She went on to describe examples of these strategies as they had been implemented during the year. A number of these strategies are described under the headings to follow in this chapter.

Area Two - Religious Dimension

The Religious Dimension of the curriculum was evident in the planning documentation of the Indigenous Garden Project described in the preceding section. The development of this habitat provided opportunities for the growth of student and staff spirituality. It was to become what the Principal described in her interview as "a meditation centre" [Principal Interview 3 February, 2005]. In her interview, the Assistant Principal described the outdoor area associated with the gazebo as a "space where children can go to meditate, hear stories and foster an inner peace" [Assistant Principal Interview 20 October, 2004].

Staff professional development was another crucial element of the school's journey towards becoming environmentally active. This was named by both Marie and Isabelle in their interview [20 October, 2004] and was seen by both to be related to the Religious Dimension within the research framework. Teachers were gradually becoming both more "aware" and "better skilled" as noted in this interview by the Assistant Principal. In the interview she cited an example during 2004 when staff went to a local reserve, the only natural site left in the area. This was an opportunity, facilitated by the Mercy Foundation Environmental Officer, to "experience the park and also to provide professional development in environmental education". Both the Principal and Assistant Principal described the experience as a "spiritual opportunity" for teachers as they stood and prayed on the rocks. Marie said teachers had described the experience in their evaluations as "very moving" and commented to the Principal that they had "no idea such a peaceful place existed" [Principal and Assistant Principal Interview 20 Oct, 2004]. The experience could be interpreted as potentially

a moment of "ecological conversion" in the terms of Pope John Paul II as described in Chapter 2.

Area Three - Curriculum

Integration across Key Learning Areas

After the implementation of the Strategic Management Plan 2004-2008 (See Appendix C) began, the school Environmental Management Committee shared responsibility with the school Executive Team for the development of an Environmental Management Plan. Several teachers had volunteered to participate. Jane, one of the teachers, explained to me during an informal conversation (10 February, 2005] that this Committee "worked closely with the Executive staff and other staff committees for Human Society and Its Environment (HSIE) and Religious Education (RE)". An example of this cooperation was provided when Isabelle said in her interview that she had:

> invited the Religious Education Co-ordinator (Sioban) to take on the organization of the school's recycling program within her role description and that this provided a symbolic but practical way of showing the school community the relationship between the religious life of the school and practical responsibility for the environment [Principal Interview 3 February, 2005].

I attended a curriculum planning meeting where teachers were planning Literacy strategies related to the development of the school garden. This was one of several projects that reflected the stated strategic environmental goal for 2004, mentioned in an earlier section of this chapter: "To develop a plan that would enable the students to experience the wonder of creation and learn about environmental practice" (See Appendix C). The Indigenous Garden described earlier was just one of these projects

and provided a practical means of linking Religious Education, Human Society and its Environment, Science and Literacy through rich learning tasks.

Two of the teachers, Jane and Julie, who had continued the work of the Environmental Management Committee met with me for an informal conversation [14 September, 2005]. Jane said that they had "founded an environment club with about fifteen student members who met at lunchtimes". They had planted a vegetable garden, which had been "mowed over accidentally". However, Julie said that they had also initiated "a worm farm with the expertise of the local council environment officer, and the environment club members looked after the worms, recycling suitable food scraps left over from lunchtimes" [14 September, 2005]. Jane and Julie offered me a copy of a CD ROM recording photos of the worm farm which had been produced with the students and I added this sample to my collection of data. Jane said, "Each class has been issued with a bucket to collect scraps and bring them to the club members, who keep the school informed over the microphone on assemblies. The club also weeds the Indigenous garden" [14 September, 2005]. Julie added that they "had continued to take the children to the garden and into the gazebo that had been installed, and they love it!" [14 September, 2005]. Julie told me in the same conversation that "classes had been able to pick up this enthusiasm and co-operated with the Environment Club by reading their news notice board and collecting suitable articles to display there".

Marie indicated [Assistant Principal Interview 20 October, 2004) that a "Scope and Sequence chart was developed with the Education Officer, Janine, from the Mercy Foundation, to set out the connections across the curriculum. The success of these

learning programs was evident on the school website (2004) where the 8-week unit of work developed was displayed, together with student work samples, photographs of the garden, the native plants and the smoking ceremony which was conducted at the opening of the completed garden by the Catholic Education Office Regional Indigenous Adviser, Tessa. I collected digital copies of the photos from the website, together with the unit of work developed. Table 4.4, downloaded from the school website, summarizes the unit of work. (As mentioned in an earlier section, the reference for this website is not included in the Reference Listing for purposes of maintaining the school's anonymity, a requirement for this research).

Table 4.4   *St Mary's Primary School Pilot Project Environmental Studies and Habitat Planting 2004 'Looking After Country'*

(Class topics over eight weeks May 2004 to July 2004)

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Classroom Aims Objectives **Outside** Ceremony Sorry Day	**Classroom** What is an Aboriginal site Draw a picture on your folder with aboriginal symbols	**Classroom** Trees Features Breathing Tree Who lives there Fire	**Outside** Map their country Measure trees Test soil Test soil temp	**Outside** Planting by all classes of habitat and watering new plants	**Classroom** Birds information Feral Birds **Outside** Bird count in your school Water plants	**Classroom** Food Chain what is it? **Outside** Food chain Game	**Classroom** Show how to use the map of school grounds Knowledge Hunt game
Activity Sheets	**Activity Sheets**	**Activity Sheets**	**Activity Sheets**	**Activity Sheets**	**Activity Sheets**	**Activity Sheets**	**Activity Sheets**

Subsequent to the actual development of the habitat, a comprehensive draft resource for teaching an integrated unit on Indigenous habitat development had been written by Janine, the Education Officer for The Mercy Foundation (2003). The Foundation was seeking a suitable school to trial these materials and St Mary's offered to do so. In an interview with Janine [3 March 2005], she explained that the work with St Mary's

staff and students had been "rewarding and exciting" [3 March, 2005] and that the Indigenous Garden they had planted had been developed "using seeds collected through Seed Savers so that the most appropriate Indigenous species for that part of New South Wales could be chosen for planting" [3 March, 2005].

Janine said that this draft resource, which was being trialled at St Mary's, "would hopefully become a curriculum prototype for other schools and systems to use as a teaching and learning resource in the development of an Indigenous habitat" [3 March, 2005].

Participation in the various curriculum planning committees provided comprehensive staff development for teachers as leaders of learning in all Key Learning Areas and across Key Learning Areas. Jane, a young, enthusiastic teacher, said in informal lunchtime conversation [10 February, 2005] that teachers were, "More able to see the connections between all areas of learning after teaching the integrated unit (developed by Janine and trialled with her support), to plan more co-operatively and think about the important concepts to be included in the planning stages, planning rich learning tasks within a pedagogy that addressed the real learning needs of children". Jane said that the Principal was "a resource person they could call on" for the Environmental Management Committee [10 February, 2005].

Gifted Education Program

Marie said in her interview that the "development of the Indigenous Garden was shared with the very young children in the school through an interschool Gifted Education project, entitled 'Leadership Development' and funded through the local

Catholic Schools Council" [20 October, 2004], of which the school was a member. Through the project, which Marie co-ordinated, she said that "student leadership understandings and skills were developed among a selected group of gifted students from Stages 2 and 3". A peer support program, drawing on these skills, was developed and during that senior leaders introduced Kindergarten children to the Indigenous habitat through a series of designed 'lessons', prepared by the Grade 6 students [20 October, 2004].

The documentation of this project, collected by me in October 2004 and forming part of my collection of school documentation samples, provided an example of a comprehensively integrated unit of work for students that employed an empowering pedagogy aimed to support students to acquire environmental knowledge and understandings, exercise decision making and sound judgment, practise communication skills and respond positively to planned experiences of the human and natural environment. Student work samples and Principal's comments, shared at a meeting of Principals of participating schools, which I attended [9 September, 2004], indicated the quality of enjoyment and learning students had experienced both in relating to the smaller children and in consolidating their environmental learnings. This experience was also described by the Assistant Principal in informal conversation as "an example of the Culture of Peace in action" [11 Nov. 2004].

Both the Indigenous Garden and the Culture of Peace were celebrated by the students in a unique way at the end of 2004 when they designed and had installed a Peace Pole in the Indigenous Garden as a parting sign of gratitude to the departing Principal and the school. Isabelle said she "was amazed that the students had so internalised their

learnings as to choose this particularly unique and beautiful way to be remembered" (10 Feb 2005).

Marie reported in her interview that, "bush regeneration awareness raising was developed through participation in the 'Have a go habitat' competition, embedded within a whole term's work for a Gifted Education group of students and this included study of the implications of genetically modified food production" [20 October, 2004].

Environment Camp

Stage 3 children participated in a three day camp at the Environmental Education Centre, where many environmental education outcomes were addressed. The visit included a night "star trek" and bush walking. I visited the Centre [16 July, 2004] where a collection of natural specimens was displayed for students, audiovisual presentations were available and guided walks conducted by the Environmental Officer.

Thematic Learning

The United Nations International Year of Rice (2004) was identified by teachers as an opportunity for students to participate in a systemic Catholic schools Gifted Education project, infused with scriptural and ecological values. Bishop Chris Toohey (2004), Chair of Catholic Earthcare Australia wrote in the introduction to the Catholic Earthcare Australia CD ROM *Grains of Life* (2004), which St Mary's used as a resource:

> The International Year of Rice announced by the United Nations for 2004, offers an
> opportunity, not only to appreciate the gift of rice as food for the world, but also to renew our
> commitment to share the earth's resources in a way that is equitable for all and sustainable for

the present and future health of this beautiful Garden Planet, Earth. The rich banquet of life, offered to us by God through the production of our food, is to be shared with all without exception.

As noted in my diary [27 April, 2004] I saw students from St Mary's at work in this program at the Catholic Education Office with selected students from other schools, accompanied by their teacher, Jane, and co-ordinated by the ICT Adviser from the Catholic Education Office.

Isabelle and Marie said in their joint interview [20 October, 2004] that they had supported the school's involvement in a similar regional Catholic education project in 2003 during Lent for the United Nations International Year of Fresh Water. Oz GREEN, an environmental education group working to raise awareness about water in New South Wales, had been invited to coordinate these lessons, which were held at the Catholic Education Office.

In 2004, Sydney Water was invited to work within St Mary's as a resource agency that supported it to become a "Water Wise" school.

Area Four - Management of Resources

Water

Through the Water Wise project, the school's commitment to developing more environmentally sound Management of Resources was beginning to be addressed. Isabelle said that

> The Water Wise project assisted students and staff to develop environmental awareness through the Water Use audit that was carried out by the children. They also assisted with planning for the installation of three water tanks, which included seeking quotations for the tanks and

discernment about where to place them within the school grounds. Sydney Water came out several times to advise the school. The three tanks were installed in a corner behind the buildings to supply water for the gardens and the toilet cisterns [3 March, 2005].

Isabelle was active in seeking grants to help fund this initiative. The children wrote their own school rules for sustainable water use for example, "Don't wash down the paths" [seen on the wall in Grade 6 classroom and noted in field notes, 22 October, 2004]. These rules were shared with the whole school community through school assemblies, one of which I attended [20 October, 2004].

Recycling Program

Isabelle said in her interview [3 March, 2005] that recycling was introduced in March 2004 through the VISY Recycling Program, an initiative of the local Council. She said she was "proud that some old computers that had been donated were reconditioned by one of the staff and given to families who did not own a computer" [3 March, 2005].

Isabelle explained further in this interview that there were "plans in place for the disposal of organic waste and that a landscape gardener would assist with the setting up of composting systems in the infant playground for disposal of food scraps" [3 March, 2005]. The wormery was introduced in 2005 as mentioned earlier in this chapter.

Natural Energy Use

Isabelle explained to me during an informal walk around the school grounds that "the school is committed to avoiding air-conditioning" [3 Nov, 2004] and favoured encouraging teachers to ventilate the rooms thoroughly by opening windows and

allowing air flow. This was significant at the time as other Principals I worked within the Region were raising funds to place air-conditioners in all classrooms.

The use of natural light where possible was similarly encouraged. The school was well constructed to support this, and it was noted [20 October, 2004] and during numerous school visits between 2002 and 2004 that the windows in the Principal's own office were always open and the room well ventilated during warm days. No artificial lighting was used except on dull days. During my frequent visits, I noted in field notes [Diary entry 5 November, 2004] that the same procedure applied in the staff room upstairs.

Area Five - Development of the School Site

The establishment of an "Indigenous habitat" was achieved with assistance from a grant and professional advice from Janine, the Education Officer from The Mercy Foundation. This habitat was an area planted out by students using plants indigenous to the area. These plants were provided through the Mercy Foundation and had been acquired from Seed Savers as mentioned earlier in this chapter by Janine, the Mercy Foundation Education Officer who had come to support the school [3 March 2005 Interview with Janine].

The children were actively involved at all stages and prepared a report with photos of the Indigenous Garden Project for the school website (2004). (Due to requirements of anonymity for the case study school, I have not included the school's website in the reference list). Native plants, indigenous to the area, were planted and a gazebo installed adjacent to the Indigenous habitat. Yellow streamers marked the places where new plants had been placed. Informal conversations with the children on the

playground [Oct. 21 2004] indicated that they were very conscious of the reason for the yellow ribbons, and took pride in the playground environmental developments. They walked down with me to the vacant block of land where the planting had taken place and the gazebo was built and told me "We planted the plants" [Noted in field notes, Oct. 21, 2004].

The provision of two large shaded areas was, as Isabelle described, a "major achievement for this community which is situated in one of Sydney's lowest socio-economic suburbs" [3 March, 2005]. She also stated in the interview that she had accessed available government grants to "supplement school fundraising for these shade structures" [3 March, 2005].

Summary of Environmental Initiatives

The initiatives described by Isabelle and Marie and validated through the collection of documents and research observations, are summarized in Table 4.5

Table 4.5   *St Mary's School. Environmental Education Initiatives 2004*

St Mary's School Environmental Education Initiatives 2004

Whole School Planning	Strategic Plan included environmental education; Professional Development with Mercy Foundation Resource Officer; Environmental Management Committee
Religious Dimension	Environmental Prayer; Indigenous Garden planned as space for prayer/reflection
Curriculum	Scope and Sequence Yr 4 environment unit; Stage 3 environment camp; Gifted Education related projects.

Management of Resources	"Water Wise" status; Student Water Use auditing; Water tanks; Children's environmental rules; Recycling; Computer rebirthing; Planning for composting; Use of natural air and light (Air conditioning rejected)
School Site Developed	Establishment of the Indigenous habitat; Development of playground, shared with Public School, to support the Culture of Peace; Provision of major shade areas; Maintenance of flower boxes to enhance playground appeal.

4. 7.   Factors that Supported Development

One of the research aims of the case study method was to identify the factors that had supported or impeded the school in developing towards becoming an environmentally active school. The study addressed this aim in St Mary's School through posing the following questions in the Principal and Assistant Principal Interviews:

• What have been the key factors that have stimulated and supported the development of your school in its commitment to environmental education and sustainable development?

• What have been the blockages to this? And how were they overcome?

In the initial interview, the responses had developed as a narrative about the school's development towards ecological awareness and environmental education, without specific reference to the questions. In a second interview on the same day [20 Oct 2004] the questions were posed again.

The following factors were identified by the Principal, Isabelle, as key supporting factors.

Research and Theological Reflection

Isabelle explained to me that the Australian Department of Education and Training schools project *Racism No Way* (2004), which addressed racist behaviours, "had provided a key resource for the development of the Culture of Peace" [20 Oct 2004]. The theological research the Principal engaged in through her own academic study was a resource that enabled *Racism No Way* (2004) to be contextualized within the specifically Catholic ethos of the school as it was presented to staff, students and parents.

I witnessed a typical example of how this theological reflection happened at the time of the two day School Review and Development process [12, 13 June 2003]. In the course of discerning with staff the spirit and wording for the renewed Mission Statement for the school, the Principal had presented an overview of relevant Catholic Social Teaching that could inform the life of the school, as mentioned earlier in the chapter. She stated, "We are a Catholic educating community at St Mary's and this needs to make a difference. The key values found in Catholic social teaching are the foundation of what we try to do for our children. They include the key concepts of Reconciliation, Human Dignity, Communion and Sacramentality of all Creation" [Field notes 13 June, 2004]. These concepts had been taken from the framework that formed part of the Sydney Catholic Education Office values education document *A Sense of the Sacred* (1996).

Spirituality and Inner Peace

Isabelle viewed the development of spirituality and inner peace at all levels of the school to be foundational and a supporting influence for children's learning, as was expressed in the following testimony:

> Children have been able to develop inner peace and this is very important. Unrest has turned into calmness. Spirituality and prayer have supported this. Formerly a focus on Religious Education was lacking, spirituality days for staff were instrumental rather than reflective. Teachers developed the capacity to think of others and to see the school as a whole community. "How do you nurture spirituality?" Two spiritual animators have worked quietly and effectively, for example, taking leadership of optional prayer time for students and staff in the parent room at 8.30am [20 Oct 2004].

Whole school prayer was seen as "an evangelizing moment" for teachers as well as students, Isabelle explained [20 October, 2004]. On assembly important spiritual issues were mentioned, giving a wider perspective to staff and students. An example of this was the custom of publicly acknowledging the traditional Indigenous custodians of the land. When I attended a school/parish Mass [15 February, 2004] and a public prayer ritual during the assembly [19 July, 2004], I recorded this acknowledgement in my field notes.

Staff Formation

The process of being engaged in the development of the Strategic Management Plan, the Annual Plan, the Culture of Peace, co-operative development of class programs, and the formation of the Bill of Rights for students all provided an opportunity for staff to work collaboratively as associated concepts were explored and learning strategies devised. An example of this came to my attention during a school visit after the Educational Audit [June 20, 2003], when I visited the staff room and noted in field

notes that learning teams were "actively engaged in planning students' programs with the support of an Executive member, the Religious Education Coordinator". Teacher conversation over morning tea [June 20, 2003] continued discussion of children's learning and achievements. In my field notes I recorded a "buzz of energy and excitement", with Julie expressing pride that their school enjoyed "a high profile in the local area" [20 June, 2003].

External Agencies

Practical support came from various agencies, for example, from the Regional Educational Consultant in curriculum and general school issues. My diary entries during 2004 showed regular scheduled visits with the Principal, during which the progress of the Strategic Management Plan was monitored as part of the discussion agenda. The Mercy Foundation and The Water Board provided funding and educational resources as discussed earlier in this chapter. Isabelle told me that "the local Council provided financial support and practical work in creating the shared landscaped gardens" [20 October, 2004] in the connecting street between St Mary's' and the state school. She explained in her later interview [3 March, 2005] that this project was "a direct result of the cooperation between the two Principals" and took me out to see the area. Isabelle said that the two schools had "developed excellent relationships and presented a united front to the Council who proved most generous" [3 March, 2005]. She pointed out that the garden was "an example of the Culture of Peace in action" [3 March, 2005]. I was able to see evidence of this when I visited the school during scheduled visits. Parents and grandparents were visible on the seats provided and chatted together after they had walked their children to school. I spoke to parents before school [3 March, 2005] and asked them what they thought of the

area. They replied that "It is good for the kids, and for the parents. We can sit and rest while we wait" [3 March, 2005].

In addition, in her interview, Isabelle cited the *Seasons for Growth* program, a program to assist children suffering grief and loss, as a supporting factor in the development of spiritual peace. She said that "Through the program, teachers were made aware of the issues that children were facing". [20 Oct, 2004].

Her conviction is shown in the following statement during the interview:

> There are many examples of loss and trauma. Many have experienced "great loss", involving mother/father, perhaps several people in the family. Dealing effectively with trauma is the foundation for meaningful learning [20 Oct, 2004].

Community Support

The Assistant Principal, Marie, expressed appreciation for the support that came from the community and from parents "given at every stage of the school's development" [20 Oct 2004]. Parents were "recognized and encouraged as partners and were supportive of initiatives even outside their immediate family" [20 October, 2004]. The Assistant Principal said that "parents loved the National Award the school won in 2003 for its Values Education program that underpins the Culture of Peace. Parents often comment to the Principal and to myself about the positive changes they have seen in the school" [20 October, 2004]. What I heard myself and noted in field notes in conversation with parents during the school barbeque held for parents and friends after Sunday Mass at the beginning of the 2004 school year corroborated Isabelle's remarks about parent support [Feb 8, 2004].

Meetings with families were held to engage them in the educational program. Isabelle was proud to remind me that "a parents' room was established in a spare classroom at the end of 2003 and myself, Marie and our REC (Religious Education Coordinator) facilitate meetings with parents" [3 March 2005]. I attended one such meeting to introduce the School Review process in May 2003 and noted in my field notes that this was attended by twelve parents [6 May, 2003].

A "Bullying Register" was developed and kept in the Assistant Principal's office. I viewed this with Marie and she told me that the parents "supported the initiative with enthusiasm" [20 October, 2004). Isabelle said that "Extremely needy children and parents who had preconceived cultural expectations about how children should be punished" supported the Culture of Peace and the norms implemented on the playground whereby behaviour was identified and objectified, "maintaining the children's dignity at all times" and the "sacredness of the individual" was emphasized [Assistant Principal Interview 20 Oct, 2004]. Interviews with parents were influenced by this understanding, and Marie said they were reassured that "there is another way to discipline" [20 October, 2004]. They were able to be involved and to take responsibility for children's behaviour. Isabelle concluded in the shared interview that "this development of parent/school trust was foundational to any subsequent environmental work the school proposed" [Principal and Assistant Principal Joint Interview 20 Oct, 2004].

Quality of Leadership

Although this factor did not surface directly through the interviews, the observations I made and noted in field notes in many encounters with the school leadership during

the research period were that Isabelle and Marie provided the driving force in leading school development. The Principal's capacity to inspire, to research and to model good practice was widely acknowledged by staff in informal conversations during my regular visits to the school as Regional Educational Consultant. I attended Monday morning assemblies and witnessed the calming, positive way in which the Principal and Assistant Principal addressed the children and commended their efforts, always in the presence of a large number of parents and grandparents who were able to imbibe the messages given. For example, when the Bill of Rights, cited earlier in the chapter, was introduced in each of the classrooms, the Principal spoke on the assembly about how the "Rights" were being implemented. [3 May, 2004]. I noted in field notes that the Principal "complimented the children on the way they were respecting each other's right to be safe at school" [3 May, 2004] and that she told them the staff were "proud of the way you have displayed the Bill of Rights in your classrooms so that you can read and understand what they mean for us each day" [17 May, 2004].

I also witnessed between 2002 and 2004 the steady decline in the number of students on "Time out" in the office area as the Culture of Peace was formally introduced during 2003. Isabelle drew my attention to this [3 March, 2005], observing that:

> When I first arrived at St Mary's, most of my time was spent dealing with immediate situations of behaviour management. There were often as many as ten students working outside the classrooms in the office area under the supervision of the Assistant Principal. It was so difficult! During the past four years, this has steadily declined to a trickle and now it is rare to have a child removed to the office. We have worked hard as a team to change the school culture to a Culture of Peace that really shows. The school now has a very positive reputation in the community and the national award we won for the Culture of Peace has generated a lot of pride for the parents and staff [3 March, 2005].

At the time of the School Review and Development [12 and 13 June, 2003], staff and parent comments were numerous about the quality of leadership provided by the Principal and were noted in my field notes. For example, in parental surveys returned, collated and shared with staff at a feedback meeting on the second day of the Educational Audit Report (at which I was present), the following parent comments were read aloud as affirmation for the staff and were typical: "How lucky the school is to have such an outstanding Principal. It is due to her hard work and capacity to inspire that the school had developed so well in its curriculum and public profile." This explained why teachers "are prepared to work hard and plan co-operatively for children's learning" (13 June, 2003). Both Isabelle and Marie took an active leadership role in the various school committees, in staff induction programs, staff development, curriculum development and strategic management as was evidenced in their role descriptions, which I collected as evidence, and as I observed myself in school visits. Isabelle explained to me that "Marie and I work alongside teachers in co-operatively planning units of work during planned release time for each Stage level" [3 March, 2005].

4.8   Barriers that Influenced Development

The factors that were barriers to the school's development towards a Culture of Peace and towards developing as an "environmentally active" school were identified in the additional interview with Isabelle [3 March 2005] and verified in informal conversations during regular school visits as the following.

Turnover of Teachers

Marie explained that, "New teachers come and go. Sometimes teachers lack basic understanding. Then the school is starting all over again. Staff development is crucial [20 Oct. 2004].

I had experienced first hand between 2001 and 2002 a high turnover of teachers and the difficulty the Principal had in attracting teachers to the school which was located in a low socio-economic area and had a reputation for being a particularly challenging school with new arrival migrants and fractured families. Many of the staff at that stage had been beginning or inexperienced teachers and Isabelle expressed this repeatedly to me in school visits and identified it in her interview [20 October, 2004] as her "most difficult challenge, including the need to constantly train and retrain beginning teachers". The teacher retention rates improved after 2003 which the Principal attributed to the "growing high positive profile the school had earned through its national award for the Culture of Peace and the focused work in implementing the Strategic Management Plan" [20 October, 2004].

Lack of Funding

Projects such as the water tank installation and the landscaping of the gardens were expensive. Isabelle explained that she had been able to access funding through grants, and government and non-government agencies and did not see this as a "serious barrier" to developing an ecologically sustainable community, although it was "time-consuming and challenging to have to apply for the grants" [3 March, 2005]. I believe this was largely mitigated because the Principal was so proactive in accessing available grants, for example, the Mercy Foundation project support, mentioned in an

earlier section of this chapter. Isabelle told me that, "I found it necessary to ask support from my husband and son to develop the school, because families here are so poor financially" [3 March, 2005]. Her son was a landscape gardener and as we were walking around the school site during one of my visits [17 May, 2004], the Principal pointed out to me the window boxes her son had planted out on the previous weekend and I noted in field notes that she had added, "My husband is willing to help in setting up the school's Local Area Network. He works in Information Communications Technology and it is difficult to get the expertise we need in this area" [17 May, 2004].

The factors supporting the school's development and those identified as barriers are shown in Table 4.6

Table 4.6   Factors Identified as Influencing School Development

Influencing Factors

Supportive	Non-Supportive
Theological Reflection and Solid Research Base	Lack of Continuity in Teaching Staff
Development of Spirituality and Inner Peace	Lack of funding
Staff Formation	
External Supporting Agencies	
Community and Parental Support	
Quality of Leadership- Religious and Educational	

4.8   Summary of St Mary's Defining Characteristics

From the research undertaken in St Mary's, the defining characteristics of the school

as an ecologically sustainable Catholic primary school were seen to include:

- *The Culture of Peace*: A clearly identified Culture of Peace based on the
  "Sacredness of all Creation" (a key understanding used within the
  religious understanding of the school as explained earlier in this
  chapter). The Culture of Peace was grounded within a framework of
  stated Catholic values, theological understandings and symbolism that
  informed the Vision and Mission of the school and education at the
  personal, social and ecological levels.

  Chapter 2 examined the teachings of Pope John Paul 11 regarding the
  links between ecology and world peace. Leaders at St Mary's identified,
  as did Pope John Paul 11 that the values underpinning a peaceful society
  apply equally to the "ecological question".   The gardens created for
  meditation and experience of connectedness to nature, together with
  student management strategies and an engaging curriculum, were seen
  as a support for student development of both inner and outer peace.

- *Effective Strategic Planning:* The existence of an effective   Strategic
  Management Plan that provided a mandate for the school to develop as
  an "Environmentally Active Catholic School" in all areas of school life,
  including Planning, the Religious Dimension,   Curriculum, Resource
  Use and Site Development.

- *Appropriate Pedagogy*: Learning programs for students included environmental education that was experiential, integrated, responsive, appropriate and relevant. The children were able to be in the field, either at school or out in the environmental centre. The immediate effects of school ground improvement added a relevance to their learning, as did the development of leadership potential through the gifted education programs.

A form of the eco-literacy that Capra advocates as outlined on the Centre for Eco-Literacy website cited in Chapter 2, including an understanding of "the principles of organisation that eco-systems have developed to sustain the web of life", was introduced at St Mary's through the planting of Indigenous plant species on the school property with the potential to attract native birds and the wormery with its recycling of waste into fresh soil through organic processes. These educational strategies reflected a recognition that children disconnected from the natural world could still be offered opportunities to understand the web of life within the limitations of their setting.

There was no evidence presented that the teaching staff were aware of a specific pedagogy such as the Productive Pedagogies, or principles of eco-literacy, as outlined in Chapter 2, nor technical educational language related to curriculum, apart from references to the set of Mercy Foundation educational materials presented and trialled through the development of the Indigenous Garden. This was not a whole-school

process but did affect the whole school through its visible outcome and the enjoyment all students, staff and community members as a result.

- *High Quality School Leadership* that was informed, passionate, proactive, collegial and committed to the development of a Culture of Peace and an ecologically sustainable school.

- *Sustainable Resource Usage*: Management of resources is planned to be sustainable through responsible consumption and waste disposal, including recycling.

- *Environmentally Developed School Site*: A school site that was developed to be safe, healthy, aesthetically pleasing and a resource for teaching and learning.

4.9   Conclusion

St Mary's showed many characteristics consistent with what Sterling (2001) calls "Sustainable Education", that is, education based on a new vision reflecting a "whole paradigm change, one that asserts both humanistic and ecological values" (p. 14). He refers to such education as "transformative", challenging much of the present "adaptive" (p. 15) learning that takes place in educational settings, based on frameworks for education that leave basic values unchanged and do not enable students to engage in deep reflection and new learning. Sterling (2001) argues that students (and educators) need to question basic assumptions and develop "core values of sustainability such as sufficiency, efficiency, community, locality, health, democracy, equity, justice and diversity" (p. 16).

Data collected from St Mary's demonstrated that the school incorporated many of the core values described by Sterling as characteristic of "Sustainable Education", and many of the characteristics of an "environmentally active Catholic primary school" as defined within this research project.

In Chapter 5, the findings from the second case study school, Newman School in Queensland, are presented in a structure similar to the structure used in this chapter to present findings related to St Mary's. This structure again includes use of the five major themes, based on the framework, *Steps in Becoming an Environmentally Active Catholic Primary School* (See Appendix B) to enable comparison of similarities and differences through the use of a common lens between the developmental history and profiles of the two schools.

Chapter 5. RESEARCH FINDINGS AND ANALYSIS:

NEWMAN SCHOOL QUEENSLAND

5.1   Introduction

The aim of the research was to study how a Catholic primary school can develop towards becoming an ecologically sustainable school community, that is, to describe the characteristics of such a school in terms of each of the essential areas of school life. Additional aims were to identify within specific school settings the key factors that can support development towards ecological sustainability and those factors that can present barriers to that development.

The research centred on two case study Catholic primary systemic schools, St Mary's in New South Wales, and Newman School, in Queensland. The findings from St Mary's are reported in Chapter 4. This chapter reports on Newman School.

5.2   Research Methods for this Case Study

I spent a week in the field studying this school and its context within Catholic education in a Queensland diocese. Through mutual service as members of Catholic Earthcare Australia, I have had an ongoing professional association with the former Principal of Newman, who was responsible for leading the change processes towards ecological responsibility during a ten year period at the school.

The methods employed in the case studies are detailed in the summary found in Table 3.1 in Chapter 3. They included Interviews, Shared Interviews (where two

participants were interviewed together), Focus Groups, Participant Observation, Collection of Documentation, Principal Narratives and Data Analysis. I used the same methodological processes for each school study so that the two schools could be compared and contrasted. Comparisons are drawn in Chapter 6, together with conclusions and recommendations from the study.

In the interviews and focus groups, the framework I had adapted for the purposes of the research *Steps In Becoming an Environmentally Active Catholic Primary School* and utilised at St Mary's with staff, was again used at Newman School as both a stimulus for guiding discussion and a tool for organizing the data collection (See Appendix B) .

Interviews

In the course of school visits to Newman School, I interviewed the former Principal, spoke informally with the present Principal, interviewed four teachers who had been involved in leadership of the school's ecological development during the years of the former principalship, and a key teacher who was widely recognised by school staff to be the current leader in environmental education when the research was undertaken.

For purposes of privacy and ease of referral, teachers interviewed are referred to in the presentation of findings through pseudonyms, summarized in Figure 5.1.

As in the previous case study school, interviewees were asked to respond to the planned questions, although these were intended as a guide only:

1. What have been the key factors that have stimulated and supported the development of Newman School in its commitment to environmental education and sustainable development?

2. What have been the blockages to this? And how were they overcome?

3. Where would you situate your school within the chart *Steps towards Becoming an Environmentally Active Catholic School* (see Appendix B)

The interviewees were given a copy of this framework prior to the interviews.

Table 5.1   *Codes for Interviewees at Newman School*

Interviewee	Code Name
Present Principal	Susan
Former Principal	James
Former Teacher 1	Hilary
Former Teacher 2	Mary
Former Teacher 3	Alice
Present Teacher 1	Julie

Staff Focus Group

A Focus Group with staff was conducted, again using the framework described in Chapter 3, *Steps Towards Becoming an Environmentally Active Catholic School* (see Appendix B) as a basis for discussion. The other stimulus resource proposed for use with staff as a first step in orienting the Focus Group was the video *The Garden Planet* (2001), produced by Catholic Earthcare Australia, in which the school had featured. Since I knew that staff were very familiar with its contents, the video was referred to but not screened as originally planned. Many staff had been present when the segment featuring their school and the Catholic Environment Centre had been filmed in 2001.

Participant Observation

As a participant observer, I spent time observing all aspects of the life of the school during the time available. This included a tour of the school grounds on day one [15 November, 2004] to view the school's rain forest, class and whole school gardening areas, the green house, the Indigenous garden and cooking pit, the recycling areas and shade provision. Julie guided me and provided commentary. I took photographic records and features of the campus were noted in field notes, for example, an entry related to the recycling cage noted that there were mainly aluminium cans in the bin and I wondered whether these were sold at the canteen or brought here by members of the local community. Julie explained that the children "bring them in from home so the container fills up quite quickly" [15 November, 2004]. I annotated the photographs after development to add to my collection of relevant documents [22 November, 2004].

I visited Grades 5 and 6 [15 November] and spoke in an informal discussion with students about how they managed the care of the class gardens, the children's involvement and teachers' direction. A Grade 6 student told me "I used to be a Green Guardian, but it's mainly the younger kids in Grade 4 who do it now" [Informal conversation during class visit 15 November, 2007]. I engaged staff members in brief, informal conversation during shared morning tea, lunch and afternoon tea times, but this was not fruitful as I noted in my journal, because "teachers were too preoccupied and busy to be engaged at any meaningful level". Some of them said they were new to the school and were not involved in the greening process.

Collection of School Documentation

I collected and analysed current school documentation, including the School's Environmental Education Policy and Practice *The Greening of Newman School* (1995), the CD ROM prepared in 2003 for parents *Our Dream Our Future Our School* (2003), together with issues of the school newsletter. A copy of the CD ROM is included in the appendix (See Appendix I). (This presentation is not referenced in the reference list in order to maintain the anonymity of Newman School, a requirement for this research). Promotional brochures for relevant supporting agencies, for example, the Diocesan Environmental Centre and the Comalco Green and Healthy Schools Awards, were available for me to take. The school librarian displayed class teaching resources that were used for curriculum implementation of an environmental perspective for me to view and note in my field notes [15 November, 2004].

Presentation of Findings: An Overview

While addressing each of the two case study schools separately, the presentation of findings follows a similar investigative pathway at Newman School to that reported in Chapter 4 for St Mary's There were some variations to suit the respective school cultures being studied.

The findings are reported in four sections:

- Historical Development towards Environmental Consciousness

- Characteristics of Newman School as a Green School

- Supportive Factors in School Development

- Barriers to School Development

5.3   Historical Development of Newman School

Leadership

As was evidenced in the documentary video, *The Garden Planet* (2001), discussed in more detail below, Newman School had a long history of commitment to environmental education. I knew, both through the video documentary and through my association with the Principal as a fellow founding member of Catholic Earthcare Australia that he had remained as school leader during the ten critical years of its development towards becoming an ecologically sustainable Catholic primary school in the terms of the title of this research. The Principal, James, stated in his interview that he was a foundation member of the diocesan curriculum sub-committee that had taken oversight of environmental education in the diocese and was a founding member of the Diocesan Catholic Environmental Education Centre [Principal Interview 16 November, 2004]. I knew from conversations with the Director of Catholic Earthcare Australia during 2001 that James was generally recognised as a key educator in environmental education and as such had been approached to become a member of the national Advisory Committee to Catholic Earthcare Australia, a body set up by the Australian Catholic Bishops' Conference in 2001 to promote Catholic commitment to the environment. James and myself served on this Committee between 2001 and 2005 and shared many conversations about Newman School and environmental education in his Queensland diocese. In the course of his time serving on the Committee, the Principal also presented regular reports to the Catholic Earthcare Committee of his leadership of environmental education at school and diocesan levels. A new Principal replaced him at Newman School in 2003, the year prior to this research.

The school was featured in one segment of the video *The Garden Planet* (2001), produced by Catholic Earthcare Australia, as an illustration of how one Australian Catholic school had comprehensively responded to the call of Pope John Paul 11 (2001) to "ecological conversion".

Context of Catholic Education

The school followed the Queensland Department of Education curricula and the diocesan Religious Education curriculum (these are not referenced for purposes of maintaining the anonymity of the school). These curricula offered learning opportunities for environmental education. The Catholic Education Office provided a clearly articulated environmental education policy and the diocesan context in which the school is set had been particularly supportive of environmental education. Evidence of this support was seen on the diocesan Catholic Education Office website (2004) which provided a link that introduces Catholic Earthcare Australia and described the organization as follows:

> CEA has the task of advising, supporting and assisting the bishops in responding to Pope John Paul II's call "to stimulate and sustain ecological conversion" within the Catholic Church in Australia and beyond.

The site also provided links to an environmental audit resource with the descriptor: "The following resource can help you think through your organization's 'environmental friendliness'". This resource was developed for Catholic Earthcare Australia by the former Principal of Newman School. (Again, the website is not referenced in the interests of maintaining appropriate anonymity for the school).

The website for the relevant Queensland Catholic Education Office (2004) also provided a link to the Catholic Environmental Education Centre (a pseudonym used in this research to maintain anonymity) of the diocese. The former Principal of Newman School was a founding member of that centre. The website for the Catholic Education Office gave the following descriptor:

> The Catholic Environment Centre is a special place for thousands of children to learn about the environment, sustainable living and their affinity with their creator (April, 2005).

Documentation from the Centre's records showed that more than 30,000 children and adults had visited the Centre since its opening in 1994. Many had used the facility for personal and spiritual enrichment, artistic workshops, leadership training and specific areas such as history, biology and geography.

These introductory references indicate the level of awareness that had existed in the diocese and the Catholic Education Office during a decade and longer prior to the research period. The fact that Newman School is situated within a diocesan context of sound support for environmental education was acknowledged by all those I interviewed for the research and in informal conversations engaged in with numerous educators while in the diocese. The leadership of such an environmentally aware and active Principal over more than ten formative years was also widely acknowledged.

5.4   Stages in the Development of Newman School

As in the case of data gathering at St Mary's, the interviews with the present Principal Susan, the former Principal James, a former teacher Hilary, a former teacher Mary, a former teacher Alice and a present teacher Julie, developed as narratives about the

lived experience of being part of school development rather than as direct responses to the interview questions, although reference was made to these. Interviewees spoke of the years in which Newman School was developing towards becoming an ecologically sustainable school. A number of key themes and initiatives emerged from their testimonies as historical developments or stages in the school's growth towards becoming an environmentally committed school. These stages emerged as commonly recognized landmarks from the interviews.

The Greening of the School Site

Hilary in her interview [15 Nov 2004] recalled how the school looked when she and the former Principal James, first arrived. She said, "It was a concrete jungle and at first there was no overall plan". Images of the barren, undeveloped site were recorded in the Catholic Earthcare Australia video mentioned earlier, *The Garden Planet* (2001), in which the school's development was featured. Julie said in her interview [16 November, 2004] that she believed that "the stimulus for action came with an event the school staff had named as early as 1990 as 'The Greening of Newman School', an annual event which drew in parents who donated plants and came to working bees in the early days" (16 Nov. 2004). Julie told me that in presenting a Power Point presentation report to parents in 2003, she had stated that:

> As Newman School has grown and developed, there have been many positive changes to the outdoor environment and gardens. Looking back at what the school was like before, makes us very proud of our achievements and our desire to continue to create effective and useable working environments outside the classrooms [16 November, 2004].

James, interviewed for the video, *The Garden Planet* (2001), explained in the text of his segment of the video that, when he came as Principal to Newman School in 1992,

the primary school was being developed on a former secondary school site that had been "bare asphalt, largely unrelieved by trees". There was a choice of leaving it as it was, or "greening" the grounds. This was an "easy choice" he said, and the "greening" program began [Quotations taken 3 December, 2005, from *The Garden Planet* (2001) video text].

Development of School Plan

According to former teacher Mary, who had been on the staff in those days, at first this greening process was "more an additional activity", but gradually "developed into a whole school plan" whereby "different areas were delegated to different classes, for example the vegetable garden or the flower garden" [Joint interview with Hilary and Mary, 16 Nov 2004]. Hilary mentioned that a groundsman was employed who "had to be educated in ecology and plant choices, because he liked a tidy rather than ecologically credible garden" [16 Nov. 2004].

Role of the Green Guardians

Hilary testified that "The school founded the 'Green Guardians', who were student volunteers who worked at lunchtime digging and planting, together with a committed teacher. (Laughing) This teacher was a mad woman, who gave up lunch times and did the physical work" [15 Nov. 2004].

Development of Indigenous Garden

Julie took me to view the Indigenous Garden which was planted in 2003 with pawpaws, sweet potatoes, bananas and cassava, together with an earthen cooking pit. She said that, "The Torres Strait Islander families, who are well represented in the

school, have held dance and cultural festivals on this site" [16 November, 2004]. Photographic records of these features were taken during the research period. In the digital report Hilary had presented to parents during 2003 when this project was being planned, she had included the plans for this project. The following is an extract from her report, collected as data for this research [16 November, 2004].

> We have just embarked on our second new project which incorporates the cultural identity of our School Family. With the support of our Aboriginal and Islander communities, we have started to establish a cultural food garden. In time, this garden will provide a food source for cultural celebrations and class cooking experiences. The plan is also to build a permanent Hungi pit for the traditional Kup Muri cooking. Our Aboriginal and Islander families are very excited to be part of this new venture [Extract taken (4 February, 2005) from Digital Report to Newman School Parents, 2003, collected as evidence].

The report included some pictures and details of progress in establishing the garden, including the comment of the present Principal, Susan:

> After six weeks, the next stage in the Cultural Garden was begun. The beds were built up further and a variety of native foods planted. As the plants develop and new ones are added, it will soon become a worthwhile and productive garden for our school and local community [Extract taken (5 February, 2005) from Digital Report to Newman School Parents, 2003, collected as evidence].

In an informal conversation [15 Nov 2004], Susan, who had declined to be interviewed, expressed that she was vitally involved with Indigenous Education through her membership of the Diocesan Committee for Indigenous Education and her former school experience in highly Indigenous school communities. She said that his Committee had prepared a diocesan Strategic Plan (Interim) 2004-2008 for Indigenous Education. Susan said " I am keen to promote the school's Torres Strait

and Islander dance troupe who have performed on a number of occasions, and whose families utilize the food cooking pit in the Indigenous garden on special occasions" [15 November, 2004].

In the digital presentation to parents during 2003, mentioned previously, Julie had reported, "The Cultural Food Garden has continued to thrive with products being used by our school and families during NAIDOC week" [Extract taken (5 February, 2005) from Digital Report to Newman School Parents, 2003, collected as evidence].

School Grounds as Learning Environment

As a visiting researcher to Newman School, I experienced the living environment that was the result of the "Greening" process. I collected photos as part of my documentation to build up a picture of the school [15 November, 2004] including the Indigenous Garden, the greenhouse used to cultivate seedlings, the flower pots and flower gardens that were cared for by the middle school classes and brighten the exterior of classrooms, the "fairy garden" developed for the infants children and the mini rainforest that provided an area of study and reflection for senior children.

Julie told me in her interview "Many of the school's special gardens are used as outdoor classrooms for teaching across the curriculum areas". She said the special gardens developed included:

- Colour and Scent garden
- Line and Texture garden
- Shape garden
- Rainforest garden
- Habitat garden
- Aboriginal Food/Use garden

- Growing garden (Shadehouse)
- Koala Corridor

She provided me with a CD ROM (See Appendix I) of the digital report that had been prepared for viewing by parents and this included a visual record of children at all levels of the school working in their gardens during 2004, digging, planting, raking, mulching, watering, and note-taking.

A scope and sequence chart of the related integrated units in social sciences and science that matched these student activities was referred to at the staff meeting focus group [15 Nov. 2004].

5.5   Characteristics of Newman School as a "Green" School

Through the data-gathering processes described earlier in this chapter, a clear picture emerged of what characterised Newman School as a "green" school. Hilary explained to me, "I was part of the early days here when we first started to plant the trees. We talked about the 'greening of the school' and we still talk about it as a 'green school'" [14 November, 2004]. Since "green" was the favoured descriptor used by staff in reference to their environmental commitment as a school and for the purposes of this research, I considered that this term in the context of the research approximates closely to the term "ecologically sustainable Catholic school" contained in the research title. Further clarification of the character of the school was provided through the Focus Group staff meeting [17th Nov. 2004].

Prior to the school visit, the research framework *Steps in Becoming an Environmentally Active Catholic Primary School* (see Appendix B) was made

available for consideration. The framework was used both as a stimulus document and as a focus for discussion for the Staff Focus Group (17 Nov 2004).

Evolution of "Green" School Status

After a brief introduction about the aims of the research and an introduction and explanation of the framework, teachers were asked to work in small groups to discuss the question: Where would you situate your school within the chart *Steps Towards Becoming an Environmentally Active Catholic School* (see Appendix B). Acknowledgement was made by staff of the video *The Garden Planet* (2001) which had centred on Newman School as an outstanding school.

Feedback from the group process included the following comments from teachers who reported back at the staff meeting after the group discussion:

- It is not feasible to see a school as being in Step 6 ('Full sustainability') of the framework *Steps in Becoming an Environmentally Active Catholic Primary School*, because schools are always evolving (Julie).
- Staff changes, changes in leadership, circumstances affect school development (Un-named teacher).
- I think it is a journey that is never complete (Un-named teacher).
- It is better to see the process as open-ended (Susan).
- Our school is in the Step 5 'Consolidation Phase' (Julie).

There were general nods of assent to this last comment. Feedback regarding the five areas of the framework *Steps Towards Becoming an Environmentally Active Catholic School* was given verbally from each of the five small groups which had each focused on one area of the framework. Copies were annotated by scribes to show indicators of where teachers saw the development of Newman School in relation to each of the areas. I collated this as a customized version of the generic framework for Newman

School to include the additions, which were printed in bold type to stand out from the generic indicators. The feedback from the five groups are summarised in the sections which follow:

Summary Reports of Staff Discussion Groups

Development of the School Site

Group 1 wrote: in Step 1 (Pre-Awareness), "Early Days: Initial lack of awareness. Conditions: Lack water, clay soil, staff shortages". Beside Step 2 of the framework (Developing Awareness), they wrote: "1990's: Trees planted, Seating made, bitumen in the playground, Money short, drilling for water unsuccessful". The following three steps Planning, Implementation, Consolidation were ticked, with "1990" written beside the Planning step as the year when a Grounds Sub-Committee was formed. The final step on the framework "Sustainability" was left with a question mark beside it and this was explained by Susan as in the reporting recorded above, "It is better that the process is left open-ended".

Whole School Planning

Group 2 annotated as follows: In the second step (Developing Awareness), they wrote, "Students may have expressed an interest in environment". In the third step (Planning) they recorded "We have an old policy (1995) which we are rewriting" (See Appendix J for a copy of this policy). Other general comments annotated on their copy of the framework included: "Acknowledge human and other resources" and "Links towards curriculum- RE, SOSE, Science, H.P.E", "Where we are in 2004-Develop a new whole school plan" and "Looking at national, state and Local Environment Days, Celebrations, Events, Competitions". Beside Step 4

(Implementation) of the framework, they had written "Partly" and in the Consolidation phase they had noted, "We are doing some of this", but beside "Sustainability (Step 6), they had written "No".

Management of Resources

The discussion in Group 3 noted the following. In Step 2 (Developing Awareness) they had annotated "Development of Recycling programs, eg. Separate bins with labelling". There were no annotations in the other steps of the framework, except in Step 5 (Consolidation), where the group had circled in red the framework descriptor, "Waste systems are consistent with the curriculum aims and outcomes. Staff and students are committed to making this work". This last sentence was also underlined to accentuate its importance and underneath was written "This is the secret!"

Curriculum

This group (Group 4) did not include annotation, except in the third step (Planning) they placed an asterisk beside the section that read "Policy is reviewed to ask, 'Is the school a learning culture? Is learning reflective, co-operative, relevant, student-centred, in touch with earth systems?'" They had noted "Local context" and in reporting expanded on this as "We have to fit in with the needs and interests of our children". (Un-named teacher).

Religious Dimension

Group 5 considered the framework area "Religious Dimension". I am not confident that the teachers in this group understood fully what the term "Religious Dimension" intended, as the comments did not match the area very well. In Step 2 (Consolidation)

they had annotated "Key Staff members" and "greening day, green guardians" and "focus on working bees" from which I concluded that they were referring to the Religious Education Coordinator, Julie, who emerged from the interviews as the main leader of the school's environmental programs at every level, including celebration planning for green day as well as organization of working bees. I did not like to ask a clarifying question about this in public during the feedback in case it caused embarrassment to the new Principal, as I had already gained the impression that the Religious Education Coordinator was carrying the major responsibility for the school's environmental development since former Principal James had left.

Teachers' comments (names un-known) which I recorded in field notes as they were considering the framework during group discussion included the following:

- We are asking students what they love to learn about, and they respond to this.
- Children's interests are important rather than saying, 'We will lead this' "
- Commitment is key. Dedication of teachers.
- Real life resources are best, like silk worms, butterflies, worm farms.

Annotations made on the framework and feedback from the discussion could have been more fulsome with an extended period of time for the staff meeting; however, I was committed to keeping to the hour allocated by the Principal, as I considered it would be counter-productive and discourteous to request an extension of time. Teachers were tired and needed to attend to other duties. It is a limitation of any research within a school setting where time is such a crucial factor for busy teachers and the research is carried out with the generous support of people already so fully committed during the average working day.

5.6   Data Organization within Framework

Introduction

In order to name the characteristics that qualify Newman School as developing towards becoming an ecologically sustainable Catholic primary school, a "green" school, I needed to organize the data from interviews, the staff focus group, participant observation and collection of documented evidence. The five areas of the framework *Steps Towards Becoming an Environmentally Active Catholic School* were used for this purpose.

The key areas are:

•   Whole School Planning

•   The Religious Dimension

•   Curriculum

•   Management of School Resources

•   Development of the School Site

In this way I could describe the key characteristics of Newman as an ecologically sustainable Catholic primary school in terms of the five key areas as I had done in studying the development of St Mary's in Chapter 4. These key areas became comparable to some extent to the "key categories" that form part of Grounded Theory methodology, as elaborated in Chapter 3. This use of common areas made it possible to more easily compare the characteristics of the two schools in Chapter 6.

In terms of the themes of the framework, the following findings characterized Newman School.

Area One - Whole School Planning

Evidence for whole school planning was limited to mention by James and Hilary of the Environment Education Policy and the Environment Management Committee that had guided the school's environmental development from the early days until the present. Mary mentioned in her interview that there had been "a lot of intensive work done in outcomes education" and this formed a solid base for class programming, but that there "had been some resistance to outcomes-based education as being too much trouble" [14 Nov. 2004].

However, the document *Newman School Environmental Education Policy and Practice* (1995) had provided a detailed scope and sequence of Environmental Education Objectives, Curriculum Links, Activities and Evaluation Strategies for each class (See Appendix J) . There was also a map of the various areas of the school to be cared for and environmentally developed by the classes. The teachers who had been teaching at the time of its implementation had referred to this policy in their interviews, as had staff in the staff meeting discussion, both reported in earlier sections.

Area Two - Religious Dimension

Documentation

The *Newman School Environmental Education Policy and Practice* (1995) articulated as its key statement: "God fashioned a web of creation entrusting its conservation and development to us. Our task is to respect, nurture and appreciate it" (p.2). Further, the Mission Statement reads: "At Newman School we strive to foster the care of people and the care of the environment. We aim for a conversion of heart through better

knowledge, skills and attitudinal development" (p. 2). Among the stated aims were to "Acquire Christian environmental concepts" and to "respect all of creation as a sacred trust" (p. 3).

The slide presentation prepared for parents in 2003 included pictures of the Greening Day at Newman School, accompanied by a quotation from Psalm 16: "You Lord, are all I have and You give me all I need. My future is in your hands. How wonderful are your gifts to me!"

The promotional brochure (2004) for the Diocesan Environmental Education Centre promoted the centre as a place for "creational spirituality" in a "peace-filled environment to help you focus on the Spirit of God". (A pseudonym is used and the centre is not referenced in order to maintain anonymity for the case study school). I was able to experience the peaceful, meditative atmosphere of the rain forest setting at the Catholic Environment Centre when I visited with James and met with the Manager to discuss its purpose and history. James said in conversation in the car as we travelled and noted in my field notes that, "students and teachers from Newman School have been attending for many years and before we had our own centre, we used the government school centre close by" [17th Nov. 2004].

Transformative Education

Transformative educational opportunities were offered through the Indigenous Garden where children could interact with an Indigenous gardener who, as reported by Alice, "explained Indigenous food etc, and this was particularly fortunate for us.

We also had a Torres Strait Islander teacher aide and she did a lot of work with the children. She has planted yams, cassava etc." [14th Nov. 2004].

Alice also referred to the transformative power of a developing sense of the sacredness of creation:

> As Catholic schools we are lucky to have Religious Education where valuing the beauty, fragility and sacredness of the world, of the whole Creation, is a theme. The children are taught to be thankful for their world and that it is so special [14 Nov. 2004].

The influence of the Environment Centre in developing this sense was referred to frequently. Mary had taken students to the Centre a number of times and said it "has a special place in all this. There is a peacefulness in the rainforest area and the children sense that. They need to be taught to sit and relax and wait. The gardens set up surrounding the school provided places to go for this. It says to them, 'You are caretakers of the world'" [Nov. 15 2004].

Area Three - Curriculum

Learnscapes

James in his interview [16 November, 2004] spoke about the school gardens as teaching and learning resources, just as Julie had done in her interview, mentioned in an earlier section in this chapter. James said that "a key reference for this development of the gardens as an environment for learning had been the "learnscapes" approach developed through *Hands on Learnscapes Incorporated*. According to the website, this association is a "non profit association incorporated in New South Wales. Established in 1997, the association aims to access public and private sector funding to assist schools develop their grounds to enhance student learning". James defined the approach developed within the Newman School context

as "creating a total learning environment and outdoor learning spaces" [Principal Interview, 16 Nov. 2004]. James also explained that some key beliefs of this program that inspired pedagogy at Newman were that education should be "transformative, integrated across the curriculum and able to fully engage children within the environment through gardening and other hands-on activities as well as learning about it in class" [16 November, 2004). I told James I would be interested to learn more from the relevant website and found that the following points were included on the Hands *on Learnscapes Incorporated* website as important for ESF:

1. Education must be Transformative;

2. Environmental education involves loving the environment, achieved through education experiences in the Environment, resulting in empathy, knowing about the Environment, undertaking Education for the environment, resulting in   positive action;

3. Integration of learning across the Key Learning Areas;

4. An Action/Research Inquiry Model of learning that involves Investigation, Vision, Action, Change. (IVAC).

I raised the issue of "learnscapes" with Mary in her interview and she explained that "these principles are applied in daily teaching and learning as the children plant, tend and play in the school gardens" [15 Nov, 2004]. During the visit I was able to photograph the gardens and take field notes while the children in the infant classes tended the colourful flower gardens outside their classroom. I noted the "ease and confidence the children show in the garden. A matter of course for them. No big deal" [15 November, 2004].

Integration in Key Learning Areas

Firstly, in reference to integration across the Key Learning Areas, Mary described how:

> in the middle school, SOSE, English and Science (integrated) units on soil testing and healthy eating were used, with the vegetable gardens as the basis. The seniors focused on the Rain Forests, with the excursion to Catholic Environment Centre as a central resource. The early years focused on life cycles- frogs, silk worms etc. (14 Nov. 2004).

Hands-on Learning

Alice explained that hands-on learning was carried out in the growing of vegetables which were "experimented with" as tuckshop ingredients and declared successful:

> They really enjoyed picking their own vegetables. (The teacher made spinach dip from the spinach they had grown and brought it in for them to taste). Some vegetables were taken to the tuckshop. It was good to have the children tasting additional foods that are different [13th Nov. 2004].

Mary described how the small children found out how ecological systems work by trial and error:

> The children were able to learn about their local climate and plants suited to that. They experienced the successes and failures of growing plants and the patience it requires. Their experiences taught the interrelatedness of all things, eg. Why don't we kill the bugs? The bugs will eat the aphids. [14th Nov. 2004].

Learning to Love the Environment

Julie reported that "opportunities for loving the environment and developing empathy with nature were provided for the senior classes as they focused on the theme Rain

Forests, with the excursion to Catholic Environment Centre as a central resource" [15 November, 2004].

The smaller children enjoyed the rain forest at Newman, described by Alice as follows:

> There are big established trees in the school that formed a rain forest and there is a "fairy garden" for the little children, with paths made through. The area includes "sitting rocks" where children could come to study leaves etc. [14th November, 2004].

Again, Alice testified that:

> The children prepared trays of flowers to be placed outside the classrooms, and loved the hands-on nature of this. The school had an old greenhouse for plant propagation that was effective. Also there was a worm farm in there, and the children loved to pick up the worms [14 November, 2004].

Area Four - Management of Resources

Waste Disposal

There were several references to waste disposal in the course of the interviews. Hilary stated in her interview that, "the Water Wise and recycling program we have included in our science program, *Primary Investigations* (2004) (an Australian Academy of Science program the school had adopted). The program includes the study of composting and decomposition and involved the construction of the 'Banana Pit' to compost food scraps. Different coloured bins are provided for the various recycled materials. Student leaders remind the school about this system during assembly" [14 November, 2004].

I photographed the aluminium can recycling bins in the grounds on the edge of the rain forest area and added the annotated photographs to my field notes. These showed the bins the school used to implement waste management systems for recycling cans (a large wire basket) paper and food scraps (green and yellow coloured bins). *The Garden Planet* (2001) video showed a segment where children were feeding food scraps to the neighbour's ducks, a practice that James comments on in the video transcript.

General School Resources

There was no evidence presented to show that consumption of power and other resources such as paper had been monitored. This would probably have been a next stage in the school's development had there not been a change of leadership, as James was the architect of the *Environmental Audit* document prepared for Catholic Earthcare Australia. As testified during a presentation James made at the Catholic Earthcare Climate Change Conference in Canberra [26, 27 October 2005], during which I took extensive notes, he had trialed this document in his new school during 2004 and 2005. He described the document as a "distillation of his experience and thinking in environmental education over many years in education" [27 October, 2005].

Area Five - Development of the Site

This aspect of the school's green commitment was the most immediately obvious to the visitor. The photos taken in the course of my visit to Newman and annotated as additions to my field notes [October 15, 16, 2004] testify to the tree planting generally and the specialist Rain Forest Area, the Indigenous Garden, the class gardens, the Fairy Garden, the greenhouse and the general attractive plantings that have enhanced

the school environment. In addition to this, the use of the external environment as 'learnscapes', as described earlier in this chapter, is an integral part of the school's formal curriculum.

Julie made available to me a copy [15 November, 2005] to add to my data collection of the future plans the school had to continue the development of the site through the Memorial Garden and its accompanying plantings, which was an indication of the school's ongoing commitment to the environmental development of the school site. It included a hollow-block, hexagonal fenced area, with plantings on the outside, meditation benches lining the inside walls, a large stone cross set into the middle of the internal lawn and the school crest embedded in the wall. There were to be seven square flagstones either side of the entry of the garden with seven key words the school had identified as important inscribed on the stones. These included: Peace, Love, Joy, Hope, Friends, Mary, Helping. At the rear of the garden walls, rising from the fence would be a semicircular arch with a rising sun and the words of the intended patron, St John Fisher, inscribed in stone. This plan symbolized the connections the school had made between the management of the school grounds and its religious life. A slide of this plan *Our Dream, Our Future, Our School* is included in the Power Point Presentation Julie made to parents in 2003 (See Appendix I).

5.7   Summary of Characteristics: Newman School

A summary of the characteristics identified during the research period of Newman School as a "green school", are presented in the following table:

Table 5.2   *Characteristics of Newman School*

1.Whole school Planning- Reflected in:

1. The Environment Management Committee
2. Environmental Education Policy and Practice (1995)
3. Mapping of Environmentally Developed Areas

2.Religious Dimension- Reflected in:

1. Mission and Vision Guided Green Development
2. Religious Education Program
3. Catholic Environmental Education Centre
4. Transformative Education as a Priority

3.Curriculum- Reflected in:

1. Development of Learnscapes
2. Cross-curricular Linkages through the Scope and Sequence
3. Action/Research Engaged in by Teachers

4.Management of Resources- Reflected in:

1. Recycling of Cans
2. The Water Wise Program
3. Composting, including Recycling
4. Student Leadership

5.Development of School Site- Reflected in:

1. General Tree Plantings
2. Development of Rain Forest Area
3. The Indigenous Garden
4. Class Gardens
5. The Fairy Garden
6. The Greenhouse
7. Plantings of Flower Gardens
8. Development of Learnscapes
9. Planning for the Memorial Garden

5.8   Factors that Supported Development

There were a number of recurring factors that emerged through the data collection as

being influential in the development of Newman School as a "green" school. These

included supportive factors and some barriers to that development.

Principal Leadership

Principal leadership was mentioned by teachers interviewed as a crucial factor in the school's development. The comment from Mary that, "Our previous Principal James, had a lot to do with it" (school environmental development), was followed with the statement:

> If you don't have the Principal with you, you're really up hill. Things like finding a place to establish a garden. 'There might be a building needing to be there at some stage', or 'We can't afford the water system you want' (but we can afford air con!) are hard to take (14th November 2004).

James was, according to Alice in her interview "recognized as a diocesan leader in this field with the credibility of leading a large school where comprehensive structures were in place at every level" [15 November, 2004].

James explained in his interview [15 November 2004] "I studied theology in the United States during the 1980's, including eco-theology, and this gave me the theological and spiritual training that inspired me to work for the environmental development of both Newman School and in my new school. I've been active in the diocese in setting up our committees and getting the Catholic Environment Centre going as well" [15 November, 2004].

In the Focus Group with staff (15 November 2004), the comment was made by Julie in her feedback that "changes in leadership" would be a strong factor in preventing a school from becoming fully environmentally active.

It was obvious to me as an observer in Newman School and noted in my field notes [15 November, 2004] that there had been "some loss of momentum with the change

of leadership"; Susan declined to be interviewed herself and invited her Assistant Principal Religious Education, Julie, who is the active teacher leader keeping the environmental education program alive, to be the main interviewee on the school's behalf. It was evident that some progress had been stalled under the new leadership because James stated in informal conversation noted in my field notes en route to the environment centre that, "The Newman Environmental Management Committee has folded this year I believe" [16 November, 2004].

In informal conversation with Susan, noted in field notes [15 November, 2004], there was "no evidence of experience or expertise in environmental education on the part of the new Principal. She doesn't seem fired up about it, not a priority!" Even though James and Mary as reported earlier, had referred to change of leadership as a factor, this was not mentioned by Julie who was in my observation the major driving force behind the continuing school commitment to being a "green" school. She appeared to feel well supported because she said that "the school greening aspect of my work is seen by the Principal to be part of my role as leader in Religious Education". I wondered, as noted in my field notes "How long can Julie keep this up? So busy in the role!" This continuing role for Julie was observed and noted by me in field notes to be "a given for the school" because in Susan's introductory remarks at the beginning of the staff focus group meeting she "introduced Julie as the leader of the school's environmental initiatives" [15 Nov, 2002].

Teacher Leadership

The leadership provided by key teachers during the years of the school's development of its environmental programs was clear from the ways in which these teachers

described their involvement in practical, hard work. Alice shared that she felt the burden when "some teachers were uncommitted and apathetic, considering it too much hard work" [15 November, 2004] to be involved in the lunchtime greening processes. Julie mentioned that as coordinator of the Green Guardians, she "spent every Wednesday at lunchtime working with the Guardians in the school gardens or the greenhouse" [15 November, 2004].

It was evident from the interviews that the leadership in environmental education developed at Newman School was taken into other settings by two of the teachers interviewed, Hilary and Mary. In the case of the former the new role was as environmental education leader in her new school and the other teacher became a leader in formation at Catholic Environment Centre, working with teachers. The enthusiasm and knowledge these leaders had taken with them was, according to James in a discussion as we travelled to the Environment Centre, [16th Nov. 2004], making "a vital impact in their new settings on the development of environmental commitment in the diocese".

It was difficult to see in the light of the data how the school could have developed successfully without the dedication and conviction of James and these key teachers.

Significance of the Catholic Ethos

Religious Education

Alice expressed the view that:

> As Catholic schools we are lucky to have Religious Education where valuing the beauty, fragility and sacredness of the world, of the whole Creation, is a theme. The children are taught to be thankful for their world, and that is special [15 November, 2004].

Mary saw a barrier in the lack of response to the Catholic ethos. "A big number of Catholics do not see the 'ecological vocation' as integral to their Baptismal commitment". This, she said, was "allied to the general lack of awareness of theology, scripture and Church teaching" [14th Nov. 2004].

The school policy, *The Greening of Newman School* (See Appendix J), included elements of the religious dimension in stating: "God fashioned a web of creation and entrusted its conservation and development to us. Our task is to respect, nurture and appreciate it" (p. 2). One of the Aims of the Policy was that "students will have the opportunity to acquire knowledge and understanding of Christian environmental concepts (p. 3)."

The Values and Attitudes Objectives in the Policy state that students need to have the opportunity to develop "humility and wonder of creation, an appreciation for the gift of creation, a joy within and a hope for creation" (p. 3). Through Knowledge and Understanding objectives, the policy states that students are to "learn of God's presence in creation" and learn to "recognize that the needs, wants and interests of individuals and groups of people can result in competition for resources and that Christians are challenged to make a conscious option for the poor" (p. 5). This indicated a holistic approach to curriculum development that could blend humanistic and ecological values.

Another example of this holistic approach was seen in the school's desire to express its stated policy commitment to "learn of God's presence in creation" (p. 5) into a tangible form through a process of planning for the Memorial Garden as described in

an earlier section of this chapter. Julie wrote and presented the following overview of the project for the school community in the parent presentation *Our Dream Our Future, Our School* (see Appendix J)

> With the need to recognise, remember and celebrate the history of our current campus, we have decided to create a memorial garden area where we will feature symbols of the four schools which amalgamated to form (Newman School) as we are today. This will incorporate the original front gates of our campus. It will also be a place for memorial plaques for members of the school community who have passed away. The plan is for this area to become a "Sacred Space" where individuals, groups and classes can come to find peace and prayer. It will be big enough to seat a class. The gardens and plants around the area will feature the colours of the schools and be in keeping with our local flora (See Appendix J).

It was evident that the school intended the religious life of the students to be intimately connected, both with the historical journey of the school and with the total greening process.

Professional and Spiritual Growth

James mentioned in his interview that, "key people were developed all the time through such initiatives as City Council seminars and the Green and Healthy Schools Program" [15 November, 2004].

Alice explained how, "Teachers sent to Brisbane to receive the Comalco trophies were able to network with other key teachers and 'Nothing succeeds like success' " [15 Nov, 2004].

Diocesan Environment Education Centre

James said, "The Catholic Environmental Education Centre provided a live-in experience for staff and students from almost every one of the schools in the Diocese" [Interview 15 November, 2004].

Hilary spoke about her role at Catholic Environment Centre as a "formator, assisting in the professional and spiritual formation of teachers who were leading school camps". She said the influence of the Centre was "like tentacles being spread as people leave their schools and take their knowledge and commitment to new schools" [14th Nov. 2004].

James was a founding member of the Centre and continued on the Management Committee for many years.

Level of Diocesan Support

The commitment of the diocese to "ecological conversion" and "environmental education" was identified in the interview with James [15th Nov. 2004] as a key factor supporting the development of Newman School and diocesan schools in general towards becoming ecologically sustainable Catholic school communities.

In his interview, James traced the development of a Diocesan "ecological thrust" from the beginnings of the Diocesan Pastoral Assemblies in the early 1980's. These assemblies "enabled people to dream, put forward ideas, with the guarantee of being heard by the Bishop who believed in such consultation and the changes of Vatican Council 11, with its encouragement recorded in *Gaudium et Spes* (1965 Parag.1) to 'read the signs of the times'". James stated that "the 'ecological thrust' was adopted by the diocese in response to these signs" [16 November 2004].

The former Director of Catholic Education, as well as the former Principal at Newman School, had studied "theology and eco-spirituality" in the United States

during the 1980's and had been committed, as were successive Bishops, to setting up a centre for ecological formation as a "central resource" for students and teachers and the Centre, described earlier in this chapter, had been the dream come true in 1994 [16 November 2004].

Hilary, in speaking about her role in teacher formation at the Centre, also said she was a member of the Diocesan In-service Team, which she described as a "very important committee of diocesan Catholic education". She went on to say that "support for ecological education would be given an added boost from the Catholic Education Office when a new Environment Education for Schools Committee, still to be officially named, takes its place among the other diocesan education committees. This new committee will become an integral part of the overall structures for Catholic education alongside the Sustainable Living/Social Justice Committee, Curriculum Committee and the Catholic Environment Centre Committee" [15 November, 2004]. Hilary said that a website would be developed to support this Committee and that the diocese was "serious" about environmental education. The Bishop "had requested that every parish undertake an environmental audit" (15 November, 2004).

External Agency Support

The local municipal Council, the Comalco Clean and Green Schools program and the Great Barrier Reef Marine Park Authority (GBRMPA) in Townsville were among agencies mentioned by James in his interview [16 November, 2004] and by Julie [15 November, 2004] as sources of environmental initiatives. A Catholic Education Office memorandum to all schools [30 June 2004], collected for this research, described the involvement during World Environment Week 2004 of student leaders

from five Catholic schools, including Newman, in a Future Leaders' Congress at the local Council Chambers [6 June, 2004]. The students publicly presented their *Charter of Shared Beliefs* about the health of the Great Barrier Reef and their commitment to action.

GBRMPA Education Manager, Angela Colliver, was quoted on the website as saying that "schools throughout Queensland and Australia were working hard to protect the Great Barrier Reef for the future. The Future Leaders Congress is growing year by year. Students are taking part in initiatives like the Reef Guardian Schools Program and getting excited about conservation and reef protection issues". James testified in his interview to the strength of commitment to environmental education of the GBRMPA and its vital influence through the students' forum held each year for World Environment Day.

School Management Structures

James stated in his interview (16 November, 2004) that "good management structure" was a high priority for Newman School during its environmental development and that, "The Committee of Principal, two teachers and two parents progressively worked to support the school over many years and was there all the time. It met monthly at first, then quarterly". This structure had "lapsed now, but such a formal structure enables access to the school budget for essential resourcing of ecological projects" [15th November, 2004]. James explained, "I have started an Environment Management Committee in my new school and its Draft Policy on Environmental Education will guide the development of the school" [16 November, 2004]. I noted in my field notes that the development of this school could possibly resemble "the way St Mary's developed during its early years" [16 November, 2004], as outlined in

Chapter 4. James said, "the policy sets out plans for 2004 for the "Greening" of the school, with a scope and sequence of actions for each class- Year 1 Vegie Garden, Year 2 Worm Farm, Year 3 Waterwise activities and outdoor pots, Year 4 World Recycling Games activities, Year 5 Frog Pond, Year 6 Powerwise" [16 November, 2004]. These plans reflected the developmental plans during several years for Newman School under James' former leadership.

Curriculum Integration

In her interview, Hilary explained that the school began a Water Wise and recycling program, connected to the Australian Academy of Science program, *Primary Investigations* (1994) science program used by the school in the implementation of the primary science and mentioned in an earlier section of this chapter. This was when the "Banana Pit" was built for "composting bin washings and food scraps". Awareness-raising for the whole school happened through the assembly, when the Green Guardians explained their plans, for example, "to have different coloured bins for the various recycled materials" [15 November, 2004]. Hilary reported that the "management of waste created problems because the parents don't like the children dealing with rubbish and asked, 'Why are we paying fees and they have to sort the rubbish?' They fail to see the curriculum connections for this practical involvement". Hilary said that, "features of the program had fallen away" in the recent past. However, the "Green Gardening Group has remained strong because there has been the staff continuity to support that" [15 November, 2004].

Communal Support

As reported in the teacher and Principal interviews, parents and the groundsman had

an integral part to play in making the practical projects happen through preparation the grounds (digging and planting) and organizing regular working bees.

External Incentives

Each interviewee drew my attention to the series of framed awards I had noticed and photographed in the main foyer to be added to my data collection [15 November, 2004]. I noted Newman School had been winner of a Comalco Green and Healthy Schools Award three years in succession, including 2004. Mary stated, "It had not always been the case, but these awards provided a particular stimulus to the school and we engaged in the award process each year" [15 November, 2004].

Alice commented that in her new school, where she had become an environmental education leader, when "staff interest lapsed, in 2003 the school won the Award and went into environmental commitment seriously" [14 Nov. 2004]. James also noted in an informal conversation that it is "really important to tap into the opportunities that already exist, such as the Comalco Green and Healthy Schools Award, WaterWise, the Barrier Reef Authority projects and those of the local Council" [17 Nov. 2004]. These awards, competitions and programs form part of a set of external incentives that have been identified by all participants as crucial to the Queensland schools' motivation and development as green schools and to Newman School in particular.

5.8   Barriers to School Development

A number of key factors had been emerging from the interviews as factors that had been barriers to the school's green development.

Change of Principal

Mention was made, as quoted in earlier sections, by both James and Alice about how difficult it had been for the school to maintain its level of commitment since the change of Principal.

Lack of Teacher Availability

Teachers (un-named) referred during the staff meeting discussion to "how much volunteer work and out-of-class time the projects need for success and how it is difficult to encourage teachers to follow through" because of this [16 November, 2004]. I experienced and noted in field notes the 'busyness of the school' and wondered how "they would sustain the present gardens and projects in the long term without the dynamic presence of James as prime mover" [17 November, 2004].

Lack of Parental Understanding

The lack of understanding on the part of parents regarding waste disposal and the need perceived by the school for children to be actively involved in this was mentioned by interviewees and cited earlier in this chapter, as a difficulty in implementing the environmental program on a day-to-day basis.

5.9   Summary of Influential Factors

The vision of the Principal and the Principal's consistent, energetic support emerged as the most crucial factor in influencing the school's beginning and continuation as a "green" school. This factor was not referred to in the staff focus group, possibly because the new Principal was present at the meeting. It was consistently mentioned in the interviews as cited in the earlier sections of this chapter.

The supportive and non-supportive factors (barriers) influencing school development towards becoming ecologically sustainable as they emerged from the evidence already cited, are summarized in the following table.

Table 5.3   *Factors Influencing Newman School's "Green" Development*

Supporting Factors	Barriers
Principal Leadership	Change of Principal
Key Teacher Leadership	Lack of Teacher Commitment
Student Leadership	Parental Lack of Understanding
Practical Support	
Catholic Environment Center	
External Awards	
Management Planning	
Curriculum Integration	
Development of "Learnscapes"	
System Support from Catholic Education Office and Diocese	

5.10   Conclusion

The unique development of Newman School towards becoming an ecologically sustainable Catholic primary school extended over many years and depended on a set of supporting factors being in place and ongoing challenges being overcome. The school enjoyed a supportive Catholic diocesan context and a passionate commitment from its leadership and school community to ecological awareness and sustainability. The school became a model learning environment for students and staff with a series

of "learnscapes" developed and planning and implementation of integrated programs at all levels of school life. Its environmental commitment was highly visible and well sustained over a period of many years.

In the following final chapter, a comparison is made with the unique development of the previous case study school, St Mary's in New South Wales as a school committed to becoming a holistic Culture of Peace, including peace with the environment, and the developmental journey of Newman School as a "green" school.

Differences and common areas of experience are discussed regarding the respective developmental journeys of the two schools. What characterizes each as a school working towards ecological sustainability is described and compared. Conclusions are drawn about how an ecologically sustainable Catholic Primary school can be developed, based on findings from the two case studies, together with learnings from the related literature.

Recommendations regarding possible ways to support Education for Sustainability are made to school leaders and leaders of systems of Catholic education in the light of the research findings.

Chapter 6. CONCLUSIONS AND RECOMMENDATIONS

6.1   Introduction

The title of the research *Towards an Ecologically Sustainable Catholic Primary School*, expresses the aim of this study to explore the characteristics of an ecologically sustainable Catholic primary school and identify some of the factors that influenced the development of such a school.

From the data collected and analysed in the two case study schools, and supported by literature studies of sustainable schools projects, I was able to draw several conclusions related to the aims of the research. These conclusions, while related specifically to the two case study schools, are presented as generalisations that could apply to any Catholic primary school working towards ecological sustainability in whatever context.

While these conclusions relate to the ecological development of an individual Catholic primary school, by implication other wider conclusions, based on these findings, can be drawn in terms of the Catholic systems that resource and support such schools. In addition, the findings can point toward possible steps that both systems and individual schools can take to foster Education for Sustainability into the future. Hence, a number of practical recommendations encapsulating the learnings from the research are included in this chapter and are directed to individual school leaders, to leaders of Catholic school systems and to the Church authorities who mandate Catholic schools.

As a background to the presentation of the conclusions and recommendations, this chapter makes a comparison between the two case study schools in the light of the respective data gathered and analysed. The areas of commonality in their development and the differences that distinguished each school on its unique journey towards ecological sustainability are explored. This comparative study involved describing the characteristics each school shared in common as an educational community working towards ecological sustainability and the common factors that assisted or acted as barriers to this work in both of the schools. Factors unique to each school were identified as differences in the journey towards ecological sustainability.

The identification of factors that were found to support both schools and factors that were a hindrance to development in both schools, together with the identification of characteristics that both schools shared in common in terms of their ecological development are significant in addressing the key questions of this research. These questions were proposed in Chapter 1 as follows:

1. *What are the essential characteristics of an ecologically sustainable Catholic primary school?*

2. *What have been supporting factors in the development of such a Catholic primary school?*

3. *What have been the barriers to this development?*

The structure of the chapter is summarised in the following table:

Table 6.1   *Summary of Chapter 6*

1. **Introduction**

2. **Comparing and Contrasting the two Case Study Schools**

   • Common Characteristics

   • Characteristics Unique to Each School

   • Common Supporting Factors

   • Common Barrier Factors

   • Factors Unique to Each School

3. **Conclusions**

   • General

   • Specific

4. **Recommendations for School and System Leaders**

5. **Personal Reflections on the Research**

6.2   A Comparison of the Two Case Study Schools

Characteristics in Common

There were a number of characteristics that were strongly evident from the data gathering processes within the culture of both school settings, even though the ways in which these characteristics were expressed and developed within the specific culture of the schools were unique to each setting and varied in depth and intensity of expression. This research has lead me to conclude that there are some elements that would be characteristically present in any Catholic primary school committed to ecological development and that other characteristics may or may not be present. The characteristics found to be present in both case study schools include the following:

Religious and Spiritual Vision

Both schools showed evidence that key eco-theological understandings underpinned the development of the school towards ecological awareness and responsibility as called for by the Catholic Church documentation examined in Chapter 2. This documentation included *The Religious Dimension of Education in a Catholic School* (1988), which explores the ways in which religious faith can influence the quality of learning in a Catholic school context, for example, the following quotation from the document explores the links between education in faith and the teaching of science, a key learning area closely related to Education for Sustainability. It provides an illustration of how educators can draw on appropriate Catholic doctrine to teach students the values of respect and wonder, together with accurate scientific understandings about the created world.

> In a number of countries, renewal in school programming has given increased attention to science and technology. Those teaching these subject areas must not ignore the religious dimension. They should help their students to understand that positive science, and the technology allied to it, is a part of the universe created by God. Understanding this can help encourage an interest in research: the whole of creation, from the distant celestial bodies and the immeasurable cosmic forces down to the infinitesimal particles and waves of matter and energy, all bear the imprint of the Creator's wisdom and power. The wonder that past ages felt when contemplating this universe, recorded by the Biblical authors, is still valid for the students of today; the only difference is that we have a knowledge that is much more vast and profound. There can be no conflict between faith and true scientific knowledge; both find their source in God (Parag. 54).

In other sections of the document, the links between faith and culture are explored in relation to other disciplines, including history, the arts and literature studies. Both case study school Principals spoke of the influence of their Catholic theological

studies which had given them ecological insights and convictions to underpin their planning for education towards ecological understandings within their school's overall life and curriculum.

In both schools, as reported in Chapters 4 and 5, when students were engaged in ecological studies during their time away from school at educational environmental centres, a dimension of prayer and reflection was included to allow students and staff time and space to ponder the beauty and significance of the gifts of nature and express gratitude to God for them. However, there was no evidence that either school undertook to systematically integrate a religious dimension within particular subject disciplines as the document cited above recommends; the integration was rather through whole school processes such as ritual and communal gatherings or special events.

Catholic documentation introduced in Chapter 2 also included the teachings of Pope John Paul II, for example, his New Year's Day Message of 1990 about the links between human dignity, true learning, ecological responsibility and the development of a culture of peace.

The schools studied exhibited an understanding that Religious Education and spiritual formation for students and staff have an intrinsic ecological dimension. This vision affected the total life of the school and linked to their pastoral care and human development programs.

The conviction that the natural world is the creation of God and is a sacred gift had an influence on every aspect of school life, including the pastoral care of students as well as care for and development of the natural environment. The understanding that the human person is sacred and images God as does the natural world was explored through an introduction to themes emerging from Catholic Social Teaching and Eco-theology in Chapter 2. It follows that humans are called by God to live with one another and the whole of nature in peace and harmony and mutual dependence. This fundamental understanding and belief guided attitudes to foster the responsible use of resources so that the natural world, the source of the essential resources to sustain life at all levels, could be maintained in its integrity and held in trust as a gift for all, not to be squandered.

Further, the vision of the natural world as the artistry of God the Creator inspired school leaders through their theological studies to foster direct contact for staff and students with soil, water, plants and animals in their habitats in order to foster a sense of awe, wonder and gratitude for the gifts of life. Thomas Berry's vision for education, quoted in Chapter 2, an education that guides students towards an intimate relationship with the earth, found an expression in these school scenarios.

These opportunities were further provided through development of the school campus as a place of natural beauty with spaces for flora and fauna studies, contemplation and a space where precious food could be observed as it was grown. Students were also taken beyond the limitations of the school on excursions to places of great natural beauty.

Students were introduced to appropriate Indigenous people who could share with them the age-old sacred relationships their cultures have enjoyed with the earth. The school Principals hoped that through encounters with Indigenous understandings, opportunities would be offered to staff and students to develop personal responses to the earth and a sense of responsibility in relationship with it, together with a capacity for contemplation and thanksgiving. Such experiences were strategically planned by school leaders and staff in order to foster the well-being of both staff and students as they learned to live within the ecology of earth's community, in rightful relationship with both humans and non-humans.

In Chapter 2, I introduced the writing of Indigenous school Principal, Miriam Rose Ungermerr who speaks of the concept of "deep listening" (dadirri) which she describes as a gift of her Indigenous people to mainstream Australians. The importance of understanding indigenous, respectful relationships with the earth was explored in the review of literature associated with creation spirituality. Both schools showed evidence of the effects of creation spirituality and "deep listening" for both staff and students.

The rituals celebrated for significant events included an ecological dimension so that the school community could experience the links between faith and sustainable living. Students could see the holism of their faith in action as the school modelled responsible use of resources through the ongoing auditing of energy and water usage and the development of ecologically responsible waste disposal processes. Ritual provided the community with opportunity to acknowledge the waste and lack of ecological awareness that had inevitably been part of school and personal lifestyle.

Strategic Planning

Long term and annual planning, fully or partially documented, was a feature of the schools, reflected in formal strategic management plans, newsletters and reports to parents, units of work for classrooms, policy documents, school promotion brochures, websites, applications for grants and articles written about the schools in magazines or education reports. Strategic planning guided developmental steps to be implemented in the short and longer term. An environmental management plan that formed part of the larger strategic management plan of the school was shown to be important to maintain commitment, sustain projects during changes of leadership and help to stage projects in a realistic way.

However, commitment to planning differed in expression between the two schools, as St Mary's belonged to a system that had highly developed and long-standing structures for strategic planning, reflected in cycles of review and development within all diocesan schools. The Queensland school did not have such a systematic framework of diocesan strategic planning within which its own plans were shaped. It is interesting to note however, that St Mary's inclusion of an ecological dimension in its planning represented a new initiative for the diocese, while the templates and processes used for strategic planning were common to all schools.

Openness to Learn

Leadership and staff, together with the local community in partnership, displayed an overall willingness to work with the planning and implementation, to try new processes, to maintain the projects begun, and to explore the relevance of education

for sustainable living to the total curriculum and to the needs of children developing as young learners in a contemporary world.

Staff Formation

Both schools showed evidence of planning opportunities for formation of staff in eco-spirituality, for example, the Catholic Environment Centre formation experiences Newman teachers were offered and the celebration of National Aboriginal and Islander Day of Celebration (NAIDOC) Week at St Mary's with the support of an Indigenous leader.

Both schools provided opportunities for teachers to attend professional development offered by agencies such as the Mercy Foundation working with St Mary's or the local City Council Environmental Officer with Newman staff.

Both schools built up a team of expert teachers and a general level of staff awareness as the curriculum was developed. However, the formation offered at the Newman School was more systematic and sustained because the diocese provided the opportunity for all staff to be progressively exposed to environmental education and creation spirituality through the diocesan Catholic Environment Centre which aimed to include every teacher and student throughout the diocese in its programs and immersion experience over a number of years. There was no equivalent facility available for St Mary's and the leadership of the Principal was evident in her initiative to provide a bush immersion experience for students at the expense of the school, even though the diocese showed no signs of commitment to such a provision.

Pedagogy

Both schools were committed to the active engagement of students in the learning process through the rich pedagogy that ensured active involvement of students in learning, as advocated in the work of Kowalski (2003) reviewed in Chapter 2. This learning process required the provision of relevant and engaging learning experiences in, through and for the environment. Provision was made for learning experiences to be offered in classrooms, in the school grounds and in places of ecological significance away from the school.

However, in the case of both schools, there was no evidence that all staff had been professionally developed in systematic understanding of rich pedagogy for holistic learning that could integrate student learning and thinking. Some expressions of such pedagogical initiatives were described in Chapter 2, for example, the WWF Scottish Linkingthinking project developed by Stephen Stirling (2005) and the Productive Pedagogies developed by the Queensland Department of Education, Training and the Arts and adopted by the New South Wales Department of Education and Training, Curriculum Support Directorate in its *Quality Teaching in New South Wales* document (2004).

While there was conversation reported in both schools about student engagement, relevance of learning for life, immersion in the field and hands-on experiential learning, there was no evidence of sustained, systematic thinking at whole staff level to underpin these strategies for learning. Neither was there evidence that students critically reflected on their own lifestyle or that of their family from the point of view of ecological sustainability. However, in both cases, children were able to critique on

a micro level the usage of water, disposal of waste and use of resources within their school communities, but there was no evidence that the critique or the new knowledge acquired transferred to their living outside of school.

Perhaps amidst the absorbing, pragmatic realities of the daily school environment, teachers can tend to become implementers rather than divergent thinkers, and this is to be challenged if Stirling (2005) is correct; otherwise, the present paradigm of western educational policy and practice which often uncritically supports the status quo and prepares students to fit into an exploitative economy, will continue unquestioned. Stirling (2003), in an online magazine article about Sustainable Education, states the belief that even after more than thirty years of United Nations statements about the need for both Environmental Education (EE) and Education for Sustainable Development (ESD):

> It hasn't made a great deal of difference either to the state of education or to the state of the environment. Indeed, most educational theory and practice still supports unsustainable practices. A UNESCO Report on progress since the Rio Summit of 1992, prepared for last year's World Summit on Sustainable Development, claims that 'much of current education falls short of what is required' and calls for 'a deeper and more ambitious way of thinking about education' (UNESCO 2002). Meanwhile, we are educated by and large to 'compete and consume' rather than to 'care and conserve'.

While the schools studied in this research are to be congratulated on their ecological commitment and its expression, it is reasonable to conclude that their efforts can only be partial. All schools, except perhaps those not accountable to governments for funding, are somewhat limited in the degree to which they can radically challenge the status quo that supports them and renders them economically viable. Perhaps the growing awareness on the part of governments in all western countries of the urgency of the ecological crisis, demonstrated through reputable and convincing science

related to climate change and global warming, will foster curricula in the future that can radically address the present cultural challenges of consumerism and non-sustainability. Schools such as St Mary's and Newman, which attempt to address ecological sustainability within the constraints of the existing paradigm, are to be applauded.

Outdoor Learning Spaces

Part of the spiritual life of each school included an area set aside outdoors for meditation, reflection and connection with the earth. In the literature review, several examples of centres for ecological spirituality that have been made available to the wider community were cited and these were also accessed by the schools' staff and students. However, the presence of counterparts to these within the school grounds themselves was significant.

There were also areas in the grounds developed as spaces where students could engage in planting, harvesting, soil testing, observation of the cycles of nature, collection of water and recycling of wastes. The intention in both schools was also to develop the grounds as places of natural beauty and greenness so that students and staff would have the benefit of a learning environment that was uplifting and placed them in touch with nature.

Newman School's campus was much more comprehensively developed in this way because of the large area of available land and the length of time (more than twelve years) in which the school had been engaged in ecological projects. St Mary's as an inner city Sydney school had very limited, unsealed playground area to work with, but was able to maximise that effectively for student learning. Its commitment to

Education for Sustainability was only in the second year of implementation at the time the research was carried out. It is a significant finding of this research that such school environments can be created in a restricted, urban setting.

Curriculum Integration

Both schools showed evidence that environmental awareness and Education for Sustainability were embedded, at least to some extent, within the curriculum through Religious Education, Science, Social Sciences and Literacy. Both used the mandated state curricula, but gave particular attention to the implementation of the environmental outcomes through practical, hands-on learning strategies that engaged students in field studies, establishing and maintaining gardens, auditing of resource usage, recycling projects, ecological rituals and exposure to Indigenous educators and leaders.

The resources, the *Earth Community Education* (1990) kit, and *A Sense of the Sacred* (1996) included in the literature review, together with *On Sacred Ground* (2006) were all designed to support schools in the integration of desirable educational values, based on a Catholic perspective, that include an ecological dimension. The educational programs of the two case study schools provided living examples of this educational vision in practice.

Models of Sustainable Practice

The schools modelled sustainable living and practices that made this visible at many levels, for example, through the rituals, canteen operation, waste disposal systems, purchasing plans, use of water, paper, technology and energy, and the development of

the school grounds as places to learn environmental sensitivity. A commitment to choose more sustainable practices wherever possible, for example through recycling, reflected the overall school commitment to responsible and sustainable living and became acceptable practice for all concerned.

Sustainable Waste Disposal

Both schools had engaged students in auditing water usage and had set up plans for recycling to deal with daily waste, including paper, food scraps and aluminium cans. Both acknowledged the importance of a composting system as well as the accompanying challenges of collection and sorting of scraps, and the maintenance of hygiene. Neither school saw these challenges as insurmountable and planned for compost in the future as soon as they could find a practical way forward.

Access to Resources and External Support

Each of the schools had been willing to commit Principal and teacher time and energy and financial support to the school's ecological programs. Both Principals viewed their own commitment as an integral aspect of their role. Both had key teachers who had been asked to form an environmental group.

Both Principals were proactive in seeking external support from government, church and corporate agencies. This support was in the form of grants, competitions, awards and recognition at system level and wider community levels. Some form of additional funding provided the tangible assistance the schools needed to start and maintain projects. Funds received were committed to the development of projects such as the Indigenous Garden at St Mary's or the training of student leaders at Newman School.

Public Profile from Awards

Newman School and St Mary's were both the recipients of state or national awards for excellence in acknowledgment of their progressive educational programs. These awards built credibility and a profile for both Newman School and St Mary's as schools committed to contemporary educational policy and practice, inclusive of environmental awareness raising. This characteristic, while present in both the schools I studied as a strong factor in their motivation, may not be one that could be seen as a characteristic necessary for all schools working towards ecological sustainability, at least not to the same degree as the other characteristics could be considered as essential.

However, as the international study introduced in Chapter 2 by Tilbury, Stevenson, Fien & Schreuder (2002*)* indicated, in many countries the incentive of being credited as a "green" school has been instrumental in encouraging schools to introduce elements of EFS into their learning programs. Perhaps the fact that this is demonstrated through the research is itself an indicator that educators have been slow to realise the urgency and intrinsic importance of Education form Sustainability as a natural focus within any school that is truly relevant and contemporary in its educational programs. If this were the case, surely the promise of rewards would not be needed for schools to act, but would have a role, as was the case in both case study schools, in providing added incentive to continue and depth what was already in place.

Commitment to Education for Sustainability

There was a strong commitment to the environment and education towards awareness and action. This was evident in policies, conversation, curriculum content, visible

signs within the campus, student and staff involvement and the reputation the schools had earned in the immediate and wider communities. They were known as environmentally aware schools with structures that had been progressively developed over years and were visible even from the street or to a casual visitor.

6.3   Unique Characteristics

Although the schools shared in common the characteristics identified above for ecologically sustainable schools, they also showed evidence of aspects within their individual school cultures that were uniquely characteristic of one school and were not evident or were less evident in the other. This is important to take into account because schools differ in location, clientele, resource base, staff experience, competency and time of engagement in implementing their stated goals. Each school also reflects to some extent the values and expectations of the community it serves. The schools differed in the following respects.

Nature of School Campus

While the student population of each school was similar- both were two stream schools- the campus at Newman School was more than twice the area of land of St Mary's, with space for extensive plantings and a variety of playground developments. The school, unlike St Mary's, looked spacious and very green, with trees and vegetation the most visible features from the street.

St Mary's confined, largely sealed space meant that the gardens needed to be adapted to the small space, for example, use of window boxes and small plots with rain water tanks tucked away behind the buildings in a non-play area. The appearance of the school from the street was largely one of high buildings and asphalt, with a small

green block beside these structures. As reported in Chapter 4, St Mary's found a creative solution for the school's confined space through collaboration with the local state school and Council to gain joint access to more land.

Both schools succeeded in different ways to maximise the potential of their respective sites as green areas that provided both beautiful natural spaces and useful learning areas. However, having large areas of available grounds space was not found to be an essential characteristic of a school that could develop towards ecological sustainability.

School Development Timeframe

While Newman School had been developing towards ecological sustainability for over more than twelve years, St Mary's in 2004 was only into its second year. Newman was a well established school with a long-standing reputation and a string of environmental awards to its credit; St Mary's a school with a relatively recent commitment and no history of ecological awareness or environmental education prior to 2001. Although there was recognition of the school's holistic educational quality through the National Schools Award, its reputation as a school committed to Education for Sustainability was not yet widely known within the Catholic system of schools at the time of the research, but was largely confined to the local suburban area, its adjacent state school and the region of the Catholic Education Office in which the school was situated.

Cultural Composition

Newman School was a largely mono-cultural school with students of Anglo-Saxon origin but with a significant population of over thirty children of Torres Strait and

Islander background. St Mary's was a highly multicultural school with children from more than a dozen ethnic backgrounds, particularly Asian and Middle Eastern.

The presence of the Indigenous students at Newman was an influential factor in heightening awareness of the relationship the Indigenous community have with the earth. This provided an intrinsic educational advantage for the school.

At St Mary's, there were no Indigenous students enrolled and the children had no direct contact with Indigenous people or awareness. The school encouraged an Aboriginal perspective through curriculum integration, invitation of Aboriginal visitors, celebration of special commemoratory occasions and curriculum links to the development of the Indigenous Garden. The Indigenous Education Officer employed by the Catholic Education Office Sydney worked closely with the school during 2002, and the later Mercy Foundation program that accompanied the formation of the Indigenous Garden included an Indigenous perspective through the integrated learning unit that the school piloted in classrooms.

There were challenges at St Mary's to involve some of the Asian students in hands on work, which was not considered to be relevant to academic education within their culture.

Quality of Teacher Leadership

There was a contrast between the two schools in terms of teacher experience and expertise. St Mary's had a very young, inexperienced staff in the main and was dependent largely on the Principal and Assistant Principal for curriculum expertise

and direction. This meant that when the Principal changed in 2005, the ecological initiatives stalled to some extent, even though the goals were written into the strategic management plan for the future years. The new Principal did not fully understand nor resonate with the school's ecological commitment and there was insufficient support from teacher leaders to sustain it at the previous level.

Newman had a staff with experienced teachers who had been leaders within its ecological development over a number of years, and even though some of these, as well as the Principal, had recently moved to other schools at the time of the research, their groundwork continued to bear fruit and the program was sufficiently embedded within the school culture to be sustainable.

Catholic Systemic Support

While Newman School operated within a Queensland Diocese where both the Bishop and the Catholic Education Office publicly supported and resourced environmental awareness and action as an important aspect of diocesan and educational life, there was no such overtly supportive Catholic context within the New South Wales diocese for ecological development at St Mary's.

This factor was referred to constantly by staff who had been involved at Newman School. The subject was not raised directly as an issue in the case of St Mary's, who sought Church support indirectly from a religious order, the Sisters of Mercy, rather than from the diocese and the system. Support was minimal compared to the ongoing commitment in the Queensland diocese that had resulted from a succession of Directors and Church leaders stating their positive position regarding the environment and education.

6.4   Summary of Characteristics

A summary of the characteristics the study found the two schools shared in common
and those that were distinctive for each is shown in Table 6.2.

Table 6.2   *Characteristics of Case Study Schools*

Shared Characteristics	**Characteristics that Differed**
• Religious and Spiritual Vision.	• Nature and Size of the Campus
• Development Guided by Strategic Planning	• Time Span for Development
• Openness to Learn	• Cultural Composition of Population
• Staff Formation and Development	• Quality of Teacher Leadership
• Outdoor Learning Spaces	• Degree of Diocesan and Catholic Schools System Support
• Curriculum Integration	
• Elements of Rich Pedagogy	
• Holistic Modelling of Good Practice	
• Sustainable Waste Disposal Systems	
• Access to Resources and External Support	
• Public Profile and Awards	
• Commitment to Education for Sustainability	
• Environmental Auditing	

Conclusions about Characteristics

From a study of the two case study schools, I have concluded firstly, that it is indeed
possible and feasible for a school to work towards becoming an ecologically
sustainable Catholic primary school and to be recognisable as such. The two
successful schools studied testified to this. Both gave evidence of multi-layered

commitment to Education for Sustainability and progressive development of structures to support that commitment.

I have also concluded that the process involved in the development of a school towards Education for Sustainability is dynamic, unique to each setting and an ongoing process that does not reach a point where structures planned and outcomes achieved are ever fully realised. Schools are constantly evolving as changes of clientele, staff and circumstances occur. These changes alter the pace and style of the planning and implementation processes. The development of the school itself seemed to ebb and flow depending on the changing components of the overall school environment, both human and material.

Schools in Relation to the Research Framework

In the light of the research, it is interesting to conclude where each of the case study schools can be placed in terms of the six developmental steps of the framework (See Appendix B) in each of the five major areas of Whole School Planning, Religious Dimension, Curriculum, Management of Resources and Development of School Site.

It is note-worthy that I have not been able to place either school in the final step in any of the five areas, even though in terms of Development of the School Site, Newman was outstanding on almost every measure, with the exception of water management. There were no water tanks yet installed and the overall plan was still incomplete with the memorial garden still in the planning stage.

In the area of Curriculum, Newman rates at a higher step than St Mary's with its whole-school scoping, greater expressed awareness of pedagogical principles, (especially through use of concepts from Learnscapes, as discussed in Chapter 5). It provided opportunities for every student to be involved in hands-on activities at school through the universal school gardens, rain forest, waste management programs, extra-school experiences at Catholic Environment Centre at least once in their primary schooling and through the local environmental initiatives such as the Great Barrier Reef Authority environmental programs.

St Mary's as a school new to ecological awareness and commitment had discrete programs in place for certain levels of the school, mainly in the senior grades, but there was not as yet a whole-school scoping and sequencing of learning that would be developmental and involve each grade each year in a sequential program. At St Mary's there was no evidence that staff was engaged in discussion about pedagogy related to Education for Sustainability as described by Stirling (2003, 2005) and Tilbury (2002, 2003, 2005) in Chapter 2. The sound pedagogical practice that was expressed, for example, in the formation of the Indigenous Habitat, resulted from the availability of this packaged program for trialling in the school, rather than from pedagogical reflection engaged in by staff. However, there was evidence from data gathered that the Principal had a high level of awareness about sound pedagogy, for example, shown in her thinking, planning and implementation of the Culture of Peace and the engagement of students in forming the Bill of Rights, which was reflected at every level of school life through exercise of student leadership, bringing about total school ownership. In the case of St Mary's, the absence of a stated pedagogy for EfS could be interpreted as understandable in light of the limited experience the school

had in working towards ecological sustainability and the number of very inexperienced teachers who staffed this school located in such a challenging socio-economic area.

In relation to the Religious Dimension, the Queensland school had years of awareness and formation behind it in terms of eco-spirituality for staff and students. It also enjoyed the support of a diocesan authority that understood and provided for eco-spirituality and EfS. However, both schools demonstrated a whole-school commitment to linking the Catholic ethos of the school with environmental awareness and responsibility and both had leadership trained in eco-theology that guided school development of policy and practice. It was note-worthy that St Mary's was able to achieve this level of integration of the Religious Dimension without the explicit support of its diocesan authority, certainly reinforcing the finding of the importance of local school leadership in a school's journey towards ecological awareness.

Both schools were still in the Planning step in terms of Management of Resources. Even though both had effective waste management programs, neither demonstrated the existence of a sustainable purchasing plan, nor was this mentioned in feedback received. There was no evidence of digital publishing being introduced to save paper or mention of use of recycled paper. Neither school had installed solar panels for energy efficiency, although both had shade areas that were outstanding. .

The position of both schools in relation to the research framework discussed in the previous section is summarised in Table 6.3.

Table 6.3 *Case Study School Findings in Relation to Research Framework*

STEPS	St Mary's School	Newman School
1. **Pre-Awareness** *Very elementary understanding and no structures in place for EfS*	Completed	Completed
2. **Developing Awareness** *Beginning awareness and some elementary strategies for EfS in place*	CURRICULUM: Individual teachers promote EE where appropriate through the curriculum, eg. In RE, HSIE and Science and Technology. Some discussion may occur in other Key Learning Areas	Completed
3. **Planning** *Planning provision for EfS in place and structures developing at every level of school life*	MANAGEMENT OF RESOURCES: The Environmental Management Committee of staff and students arranges for sustainable waste management systems	WHOLE-SCHOOL PLANNING: An Environmental Management Committee is formed and guides policy and practice. CURRICULUM: A Scope and Sequence exists for EE across all Key Learning Areas. Policy is reviewed to ask, Is the school a learning culture? Is learning reflective, co-operative, relevant and student-cantered, in touch with earth systems? MANAGEMENT OF RESOURCES: The Environmental Management Committee of staff and students arranges for sustainable waste management systems.
4. **Implementation** *Implementation of plans for EfS happening at many levels of the school*	WHOLE-SCHOOL PLANNING: Senior staff and some teachers are implementing the Environmental Management Plan RELIGIOUS DIMENSION: Planning for staff development includes elements of Creation theology and Creation Spirituality for some staff. . CURRICULUM: Models of good environmental practice within the life of the school assist classroom learning. MANAGEMENT OF RESOURCES: Water conservation in place (using rain-water tanks, taps secured) DEVELOPMENT OF SCHOOL SITE: Short and long-term goals are articulated within the school's strategic plan for sustainable development and environmental awareness through the use of grounds and school plant.	Not yet
5. **Consolidation** *Structures for EfS are well established, working consistently and universally across curriculum and within school culture*	RELIGIOUS DIMENSION: School liturgies, prayers, assemblies, newsletters and general school life reflect school's environmental commitment.	RELIGIOUS DIMENSION: School liturgies, prayers, assemblies, newsletters and general school life reflect a whole school commitment to creation spirituality and sustainable practice. CURRICULUM: All school events are consistent with EfS curriculum outcomes. There is active student involvement and leadership. Hands-on and field experience is the norm DEVELOPMENT OF SCHOOL SITE: Outstanding environmental modeling with

		Learnscapes well developed. Goals for the grounds are progressively being implemented and there are convincing, visible developments for students, families and staff to celebrate.
		Teachers systematically plan each year to use the grounds for environmental education.
6. Sustainability *EfS is fully embedded and sustainable at all levels of the school culture , which is an outstanding model of best practice*	Not yet	Not yet

From the comparison of the case study schools' common characteristics, I have drawn a general conclusion about what could be seen to be characteristics of any individual Catholic primary school developing towards ecological sustainability. Such a school would I believe exhibit in varying degree the following characteristics, which were found to be present in both case study schools:

- Access to human, educational and financial resources to assist school development. This includes strong, informed and passionate leadership, especially at Principal level, as an essential element.

- An eco-theological framework of understanding that could inform the religious and practical educational directions of the school.

- An eco-spirituality that could enable members of the school community to celebrate and respect creation.

- Staff development opportunities for understanding and providing learning experiences that can develop ecological sustainability.

- A curriculum that can allow for the integration of eco-perspectives across the Key Learning and in all other areas of school life.

- A pedagogy that can facilitate student participation and decision-making to develop ecological understanding and commitment.

- Outdoor learning spaces that are developed for ecological experience and learning.

- Systems for sustainable resource use and waste management.

- A recognised public profile as an ecologically committed school.

It is revealing to compare these findings about the characteristics of an individual Catholic primary school with those from the research of Henderson and Tilbury (2004) into Whole-School Sustainability Programs globally, outlined in the literature review in Chapter 2. Their findings about the nature of these programs as they unfolded within schools in numerous countries can be compared with the findings of my research.

The factors Henderson and Tilbury (2004) found to be most influential in terms of uptake and effectiveness of sustainability programs can be summarised as follows:

1. *School Governance* (approximating most closely to the factor "Leadership" in my study, which includes both school and system leadership). Tilbury and Anderson state, "The key first stage, common to all whole-school programs, is to tackle the issue of governance" (p. 32). The New Zealand Enviroschools evaluation report concluded "schools required committed and structured support from their Principals" (p.32).

2. *School Policy*. The Tilbury and Henderson study reads, "The development of school policy relating to whole-school sustainability programs serves to outline the school's commitment to sustainability goals and direct areas for action" (p.33). This approximates to the finding of my study that strategic planning and development of school policy were important characteristics of the two successful case study schools, as well as being named as supporting factors in their development.

3. *Visioning/Mission Statements* were named in the Henderson/Tilbury research which stated, "the process of visioning ways forward for sustainability is aligned with one of the principles of EFS: Futures Thinking" (p.33). This "visioning" differs from the "vision" mentioned in the context of my case study schools, which have a religious context to their vision and mission statements. The "process of envisioning" (i.e. what would schools like their 'sustainable school' to look like?") (p.33) as understood in Henderson and Tilbury was not mentioned in any of the data gathering processes associated with the case study schools in this research. The case study schools did not exhibit any understanding of Education for Sustainable Futures (ESF) in the data gathering process as expressed through "envisioning". However, the strategies provided did offer a form of futures education through the empowering pedagogy offered.

4. *Environmental Audits*. These were cited as "A key component of all the international programs featured in this review, and most utilise this as one of the first action steps in their program" (p.33). In the two case study schools, there was a noticeable absence of reference to whole-school auditing, even though

this does form an important step within the framework *Steps in Becoming an Environmentally Active Catholic Primary Schoo*l (see Appendix B) which was used in the data gathering process. There was mention at St Mary's of a water audit, but this was a one-off, discrete area of school life rather than a comprehensive audit such as that recommended in the framework above or the environmental audit resource which is available on the Catholic Earthcare Australia's website. However, it is worth noting that the Henderson and Tilbury (2004) research found that the audits reported in their research did not include such aspects of school sustainability as "intercultural issues, evidence of citizenship, participation in decision-making and links to the community", which typify the "sustainable school" in terms of the Sterling literature (1998, 2001, 2003, 2005), reviewed in Chapter 2, or in the earlier study by Tilbury and Henderson (2003), cited in the literature review. The comprehensive nature of a truly "sustainable school" in the terms above, includes intercultural development and empowerment of students. Both the case study schools had integrated intercultural understandings and empowering pedagogy as key components of their total school framework, without consciously framing this within the language of a "sustainable school" according to the researchers mentioned above.

5.   *Role of the Curriculum.* The study reports that "A whole-school approach to sustainability requires, as part of the implementation process, that EE and/or sustainability content be integrated across the curriculum (p.34)". This is in keeping with the findings of my research- the two case study schools

demonstrated an understanding of this integration and provided evidence of its implementation.

6. *School Reporting*. The Report states that "Formal reporting by schools on progress is a common feature of whole-school approaches to sustainability" (p. 34) and goes on to state the connection between this reporting and the assignment of awards. The case study schools did not provide any direct evidence of reporting to the community, except the presentation made to the Newman school community to discuss plans for further development of the school site (See Appendix I). However, both schools had applied for and gained public awards recognising their school cultures in terms of environmental education and reported this to their communities, together with an explanation as to why the awards had been granted.

7. *School Networks*. The Report goes on to indicate that school networks provide the "incentives and motivation for schools to continue their participation in the program" (p.34). Networking was not a feature of either of the case study schools to any significant extent, and probably reflects the rarity of Catholic primary schools' commitment to ecological sustainability. If the systems that service Catholic primary schools in Australia had given significant leadership in this area and many schools had developed in this way, supporting networks could have helped to sustain and encourage the schools and stimulate cross-fertilisation in this area as happens in most areas of school life.

8. *Community Links and Partnerships*. The Henderson and Tilbury Research (2004) identifies these links as a way to "extend the focus of schools to connect with and actively participate in the local community". This had indeed happened in the case of the two case study schools, which had developed bonds with local Council and other bodies, as well as enlisting volunteer service to support them. The development of the school as a sustainable school stimulated the community and built a sense of solidarity and pride.

9. *Accreditation and Certification*. The Henderson and Tilbury (2004) report, in discussing accreditation and certification, found that all programs examined in the report had established some form of accreditation certification system for schools, with the exception of New Zealand. Both the case study schools sought this through the awards they successfully gained. However, if Catholic systems were generally more proactive in supporting the ecological development of their schools, they could fulfil this role by providing incentives to schools as well as resources.

I can only conclude that the two case study schools shared many characteristics in common with the Education for Sustainability (EfS) whole-school programs implemented internationally that were the subject of the Henderson and Tilbury (2004) research. Their findings corroborated those of my research to a large extent.

Environmental Auditing

It is important to note that as mentioned above, internal environmental auditing of the systems that make up the life of a school was not found to be a characteristic of the

two case study schools. However, from the literature study, especially the work of Tilbury and Henderson referred to above, and from my own involvement with Catholic Earthcare Australia, I believe auditing of schools to establish baseline data and so determine their level of environmental and educational sustainability is a crucial aspect. To some extent, St Mary's strategic management planning cycle, which included built-in reviews and a cycle of implementation, would in the long term provide an avenue for this evaluation as the school progressively assessed how successfully its strategic goals, including the ones related to their environmental commitment, had been carried out. However, this would not necessarily provide a detailed evaluation of such features as water and paper usage, energy consumption and waste disposal. I believe dedicated environmental auditing needs to be included as an essential characteristic of an ecologically sustainable school and hence it is included in the list of characteristics in Table 6.2.

6.5   Common Supporting Factors

A number of key factors that supported the development of both schools towards becoming ecologically sustainable schools were identified in the course of the research. In some instances, these factors are identified as characteristics as well. The supporting factors included the following.

Principal Leadership

It was evident that the vision, drive and practical commitment of the Principals who initiated the processes in each school was the crucial factor that initiated the processes towards development as an environmentally committed schools and a continuing

crucial factor in developing and sustaining those processes. This was the factor most frequently referred to as the major influence on school development at both schools.

Educational Vision

An ecological vision for the school was present, held initially in each school by the Principal, and gradually shared by other school leaders and school community members. This vision was based on both Catholic theological understanding of the environment as sacred and on sound educational theory about environmental education. The vision recognised that Education for Sustainability needs to be founded on pedagogical approaches that allow students to explore, experience and engage in decision-making within a living environment.

Curriculum and Pedagogy to Facilitate Education for Sustainable Development

Both schools, in varying degrees of comprehensiveness and depth, provided educational programs for their students that were directly related to Education for Sustainability. Their pedagogy included first-hand, infield experience, reflection on experience, opportunities to question, to solve problems and make relevant links to the wider world. Both schools sought to maximise the environmental elements in the mandated curriculum documents to support their classroom programs. Both provided discrete, eco-projects that engaged children in an experience that provided for in-depth learning in, about and for the environment. Both sought to utilise soundly resourced pre-packaged opportunities for student learning wherever these could be sourced, often providing opportunities outside the scope of their own school campus and staff capabilities.

Neither school however, demonstrated that they had made an in-depth study of a pedagogical framework the elements of which would demonstrably best support Education for Sustainable Futures, for example the Productive Pedagogies, Sterling's (2005) Linkingthinking or the UK Education for Sustainable Development framework developed by Stirling (1998), as introduced in Chapter 2. There was no evidence of planning for progressive development of key concepts, skills, understandings or responses at each level of a student's development, although the reliance on the mandated curricula in Science and the Social Sciences for an environmental perspective was understandable in schools situated within Australian states that have a formal approach to state-wide curriculum implementation. However, it remains true that neither of these schools had chosen to belong to the Australian Sustainable Schools Initiative of the Australian Government (AuSSI) as described in Chapter 2, nor did they show evidence of awareness of that initiative. Both schools depended on the expertise and commitment of their particular Principal to drive their programs and lead development of their pedagogical approaches with resource assistance from a variety of agencies committed to education, for example water and reef authorities. However these bodies did not have pedagogy and education as their prime focus.

The adoption of Learnscapes and what Newman termed "Transformative" educational practice, appeared to be intuitive responses demonstrating an openness to adopt what other schools and the state education department had publicised as good practice, rather than a carefully developed pedagogical framework. In the case of St Mary's, again, there was no evidence of a specific pedagogical model aimed at Education for Sustainability as such underpinning the classroom programs, even though, as at

Newman, there were many examples of how students were engaged in sound learning experiences.

Support from Networks

Both schools received tangible support, financial or educational, from external bodies committed to the development of schools as models of Education for Sustainability. This support provided networks of support, expertise and additional stimulus for schools to take further steps in their implementation.

In the case of Newman, the diocese and the Catholic Education Office were openly supportive. The Queensland initiative, Comalco Green and Healthy Schools Competition and the local Council's educational commitment all provided both theoretical and practical support for the school.

St Mary's sought advice and resource support from external agencies. The Mercy Foundation grant and the professional expertise and learning resources provided by both the Foundation and the Water Board were examples of this.

These provisions not only fulfilled a very necessary practical function, but also provided the emotional and professional context that an isolated school community needed to embark on a unique educational journey that took it outside the mainstream of schools development.

Community Links

Both schools testified to the enthusiasm with which their ecological projects were greeted by the local community. In the case of Newman, there had been parent

involvement on committees and working bees since the early days of the school's development. At St Mary's there was no evidence of practical involvement from the parent body in the school's development of its playground or learning programs, but parents expressed their pleasure at seeing and experiencing the changes. This could be partially explained by the lack of English background of families. However, it may have been possible to enlist the support of grandparents in establishing a school vegetable garden for example, as many of the children's family members of this generation had come from home lands where they had been cultivators. Newman did provide an example of involvement of the school's Indigenous community members in setting up the gardens. There was evidence that progress reports were given to the school community in the case of both schools.

6.6   Common Barriers to Development

In the case of both schools studied, there were a few factors identified that made the schools' development towards ecological sustainability more difficult. These included:

Change of Leadership

In both school communities, staff reported that when a new Principal arrived, there was a loss of momentum because the new leader did not share the same ecological vision the previous leader had articulated and shared with the community. This was a strong participant observation I made in visiting the schools in the year after there had been a change of leadership. Even though the strategic and annual plans and some of the key staff remained, there was an obvious gap in the degree of commitment and understanding on the part of the new Principal, and this was reflected in a lessening of

whole-school momentum. Key teachers were maintaining practical projects, for example the gardens at Newman and the wormery at St Mary's. However, the Indigenous Garden had become trampled and overgrown. At Newman, enthusiastic leadership in planning for the Memorial Garden had been assumed by Julie rather than the Principal.

This loss of momentum could be interpreted as a natural adjustment to a new style of leadership, but was expressed by staff with some regret as reported in Chapters 4 and 5 through the interviews and conversations. It remains an unknown whether in the longer term the quality of the program could draw out the required leadership to not only sustain but also further develop the programs in place under former leadership.

It is interesting to note that the Henderson and Tilbury (2004) research referred to in an earlier section, concludes that a program of sufficiently high quality can stimulate the required leadership. The study states that, "Evidence suggests that schools participating in these programs (the various international environmental initiatives that formed the subject of the study) are more likely to demonstrate environmental leadership and models of good practice than non-participating schools" (p.40). This is of concern given the paucity of support in Catholic systems at present, which have largely failed to provide either leadership or resources of any significant quantity so that school leaders could be so stimulated.

Staff Challenges

Teachers interviewed who had taken leadership in initiating projects within the case study schools mentioned the challenge presented by fellow teachers who were not

prepared to commit the time and energy needed to supervise students in out-of-class activities such as lunch time gardening club or collection of food scraps for recycling. They also mentioned teachers new to the school who did not understand its ecological commitment.

In the case of St Mary's, the Principal and Assistant Principal spoke often in the course of regular visits to the school of the inexperience of teachers and how much time and energy needed to be given to their induction. The constant change-over of teachers was mentioned as a significant factor for this very challenging school in a low socio-economic setting.

However, it could be argued that if the programs were sufficiently imbedded in the strategic and day-to-day life of the schools through holistic planning and were considered entirely mainstream, changes of staffing and leadership should not so greatly impinge on the school's commitment to Education for Sustainability. After all, no-one would expect any identified mainstream aspect of a school's curriculum such as its Religious Education or Literacy program to collapse because leadership and staffing had changed. I believe this factor that affected both case study schools is a clear indicator that commitment to Education for Sustainability is not widely accepted as essential in Catholic systems. In fairness, that may well be the case for other school systems as well. The Tilbury and Henderson (2005) study outlined above of international initiatives in EfS certainly demonstrated that only relatively small numbers of schools in the countries studied are engaged in EfS to any credible degree.

Absence of a Clear Pedagogical Model

The absence in both case study schools of a systematic framework for pedagogical and curriculum guidance in classrooms and the reliance on a more intuitive, eclectic approach has to be seen as a barrier to holistic development of both schools, even though this factor was not identified as a barrier by the schools themselves. In the light of the literature studied, especially the work of Tilbury (2002, 2003, 2004, 2005) and Stirling (1998, 2003, 2005), there was a demonstrated lack of conceptual definition and identification of Skills, Knowledge and Understandings for the schools to fully develop holistic educational programs that could do justice to Education for Sustainability.

In many cases, the concepts listed in Sterling's (1998) generic learning outcomes (GLO) as discussed in Chapter 2 and summarised in Table 2.3, were addressed to an extent, without being explicitly named, through the curriculum of each of the case study schools. For example, in relation to the concept "Future Generations", students in both schools had opportunities to develop the accompanying Knowledge and Understanding regarding conservation of resources.   However, there was no evidence at St Mary's of a systematic curriculum scope and sequence of the kind Sterling offered to guide Education for Sustainability, nor did the environmental policy at Newman fully meet this criterion.

It has to be stated also that neither school made the connection conceptually between ecological devastation and social justice as does the GLO framework summarised in Table 2.3, where the concepts of 'Interdependence" and "Equity and justice" are spelled out. This could be seen as surprising in light of the commitment of Catholic social teaching to social justice as a constitutive dimension of the Gospel in action.

This connection is explored in Chapter 2 through the writings of Pope John Paul 11 and by writers such as McDonagh (1987, 1990), who witnessed first hand the devastation of the land, waterways and forest of the Indigenous communities in Mindanao where he was pastor for many years in the 1980's and became the subject of theological reflection in his major writings.

As stated earlier, Catholic schools have been characterised by a commitment to social justice, resourced by such Catholic agencies as Caritas Australia. A key finding of this research, then, is that schools need to develop an integrated understanding of the links between justice, peace and the integrity of creation.

6.7   Influencing Factors: Conclusions

From the research findings, the following factors, summarised in Table 6.3, which were found to be strongly influential in the journey of both case study schools, may be interpreted as being significant influences in the development of any Catholic primary school towards ecological sustainability. It is interesting to note that two factors proved to some extent to be both a supporting factor and a barrier. Strong leadership supported both schools' development, but change of leadership was shown to be a barrier in both cases. Well developed pedagogy was a supporting factor for both; however, pedagogy also proved to be a barrier because its development lacked sufficient depth and impact in both school communities to bring about a whole school learning culture that included the key elements of EFS identified by Stirling (1998) and reflected in Table 6.3.

The conclusion is that the commitment of the case study schools to EFS was partial, involving environmental awareness raising and discrete educational initiatives, especially in the case of St Mary's, where the curriculum programs implemented were targeted at certain year levels, even though there were efforts to raise awareness at whole-school level through ritual, assemblies and visible projects in the school grounds. At Newman, all classes were involved in learning in, about and for the environment, and there were whole school, visible structures for recycling, gardens etc. that were well embedded. However there was still a lack of in-depth whole-school understanding of the language and extent of contemporary EFS and its implications for critical reflection and lifestyle.

The factors identified as commonly supporting or presenting barriers to the case study schools' development towards Education for Sustainability and towards achieving the status of "environmentally active schools" in terms of the research framework, are summarised on Table 6.4

Table 6.4   *Major Factors Influencing School Development*

Positive Factors	**Barriers**
• Educational Vision • Principal Leadership • Supportive Curriculum/ Pedagogy • Supporting Networks • Community Links	• Change of Leadership • Staff Challenges • Absence of a Comprehensive Pedagogical Framework

The implications for systems of schools in terms of resourcing member schools towards becoming ecologically sustainable schools became increasingly clearer as I analysed findings and formed conclusions. In addition, the implications for the official Catholic Church diocesan authorities who provide the mandate for the existence of Catholic systems of schools, was also in increasingly apparent. These implications are expressed as recommendations later in this chapter.

6.8.   General Research Conclusions

In general, findings from the literature review and the two case studies support several general conclusions about Catholic primary schools and the systems that resource them in terms of working to promote education towards ecological sustainability as a stated and resourced educational intention.

A Clear Ecological Mandate

Catholic Church teaching and the growing body of scientific evidence, together with ever increasing global awareness of the ecological crisis, explored in Chapter 2, indicate that there is a clear mandate for Education for Sustainability through educational processes at all levels, including individual Catholic schools and Catholic school systems. If Catholic schools are to be effective schools, they need to include commitment to Education for Sustainability. To be authentically Catholic schools, their learning arrangements need to fully reflect the best of Catholic teaching regarding ecological awareness and responsibility as central to Catholic life and belief.

Scarcity of Models for Catholic Education

This research project indicated that there have been few examples within Australian Catholic education of systems that overtly support and resource holistic programs of Education for Sustainability. Schools that have developed education for sustainable development have been the exception rather than the norm and have worked largely on their own initiative. Systems have not generally formed active partnerships with the national and state initiatives for sustainability, such as the Australian Schools Sustainability Initiative (AuSSI).

Catholic Systems Slow to Respond

The literature study indicated that Australian non-Catholic school systems have in general been more proactive and consistent than Catholic school systems in implementing the educational recommendations for sustainable schools programs drafted by successive United Nations conferences on the environment, as explored in the literature review. This conclusion is made in spite of the evidence of the positive support received in the second case study school from its Queensland Catholic diocese, Catholic Earthcare Australia and the Catholic Education Office. In particular, the two comprehensive research projects commissioned by the Australian Government and undertaken by the Australian Research Institute in Education for Sustainability (ARIES) supported this conclusion. In both the national review of environmental education in schools (2005) and the international study of whole-school approaches to sustainability (2004) undertaken by ARIES, together with the Department of the Environment and Heritage, there is no mention of initiatives taken by Catholic schools systems within Australia and within other countries such as the UK, New Zealand, France and South Africa.

There is evidence from both literature and the case studies that there are pockets of strong ecological commitment within the Catholic Church that are expressed in tangible projects such as the founding of Catholic Earthcare Australia and projects of religious orders, but at the time of this study, the impact on primary schools was seminal and ad hoc, rather than an outstanding feature of Catholic systems generally. Even though the resources prepared by Catholic Earthcare Australia referred to in Chapter 2 were made available to every Catholic primary and secondary school and all Catholic parishes in Australia, there is little evidence that these created a significant, widespread impact.

Gap between Theory and Practice

The literature search has lead me to conclude that there is a gap between the actual practice reflected in schools, in terms of ecological awareness and educational programs, and the development of Catholic Church teaching on the environment. This teaching developed especially during Pope John Paul 11's pontificate, and is reflected in contemporary eco-theology as explored in Chapter 2. However, there remains much to be done to develop these understandings of eco-theology and Catholic teaching for school system leadership. Only then will Catholic school systems give due priority to EFS and follow through with the allocation of resources, provision of professional formation and development of curriculum so that the inclusion of a comprehensive ecological dimension at both system and school levels becomes standard practice. This is further discussed in the following section in the context of recommendations to system leaders.

From the literature, it is also clear that there is a growing awareness beyond the Catholic context of the links between spirituality and ecological awareness. Spirituality is often recognised, even in non-religious literature, as a motivating and inspirational factor in making ecological commitment real. It seems ironic that Catholic school systems, while being committed to faith development and spirituality, have not in general recognised the relevance of these to the systematic implementation of environmental initiatives within the curricula of Catholic schools.

The research suggests that where outstanding commitment and practice do exist in Catholic educational contexts, they are exceptions rather than the norm and depend largely on the initiative of individual school leaders, rather than reflecting a comprehensive, well-resourced and progressive implementation strategy through policy at the school system level. System leaders could stimulate, lead and resource ecological initiatives if they themselves more fully understood the theological and educational justification for these initiatives.

However, the research within the two schools chosen for this study clearly indicates that, where a particular set of supportive factors exist to contribute to sound frameworks for planning and action, it is possible for Catholic schools to become very successful, albeit partial, models of education for sustainable development that is inspired and sustained by Catholic spirituality and consistent with recognised best educational practice.

6.9   Recommendations to Catholic School Systems

From the conclusions reported in this chapter and the overall findings of this study, there are a number of recommendations that I believe can justifiably be made to school system leaders and those governing and management bodies which guide and resource Catholic systemic primary schools. The recommendations include:

Leadership

Systems of Catholic schools could encourage Education for Sustainability in Catholic schools through recognition that system leaders and system curriculum resource personnel can be formed and influenced in their educational decision-making policies and implementation strategies by contemporary Eco-theology and official Catholic Church teaching regarding "ecological conversion" (John Paul 11, 1990). For this influence to be made real, inclusion of ecological awareness in senior leadership professional development programs would be required.

Research into Best Practice

Catholic systems could undertake research to identify examples of best educational practice that can illustrate the implementation of Education for Sustainability. The documents included in the literature study from the United Nations, for example Agenda 21, and in the *Adelaide Declaration* (Goal 1.7) have guided state departments of education in preparing their own documents and initiatives for schools, an example being the Sustainable Schools Program jointly prepared by the Department of Environment and Conservation (NSW) and the Department of Education and Training and the national Australian Sustainable Schools Initiative (AuSSI) of the Australian

government. There are many examples of schools' initiatives for Education for Sustainability to be found on the websites of these government projects.

Catholic education systems have much to learn from these initiatives by remaining open to collaborate with external bodies which have expertise in Education for Sustainability. At the same time Catholic systems need to be alert to opportunities available from government for supporting schools in implementing sustainable practice and proactively promote these initiatives among their schools. An example is the National Solar Schools Program (2008-2015) accessible on the website of the Australian Government's Department of the Environment, Water, Heritage and the Arts, whereby schools can request funding for solar panels, water tanks and other related facilities to conserve energy. In the case of St Mary's, the installation of the water tanks relied on the initiative of the Principal to seek funding. Systems of schools do not as a matter of policy leave individual schools to access government funds for example to support Literacy, Numeracy or ICT in schools, but employ staff to ensure these grants are maximised and equitably distributed. Catholic school systems need to ensure that similar opportunities exist to access government finance that supports best practice in EfS.

The Catholic education systems also have much to learn from Catholic Church bodies that have taken responsibility for the environment seriously, for example some of the religious orders referred to in the literature study and organizations like Catholic Earthcare Australia or Caritas Australia with their educational programs which include an ecological dimension. The Catholic Education Offices of Sydney and Wollongong are examples of such collaboration in their joint work with Catholic

Earthcare Australia, the key Catholic environmental body referred to in the course of this study. I was present at the November 2005 Climate Change conference sponsored and jointly resourced by Catholic Earthcare Australia and Catholic Education Office Sydney. I also attended professional development for Wollongong Catholic Education Office staff facilitated by Catholic Earthcare in 2005. Such collaborative ecological initiatives need to become a regular part of the life of Catholic education systems.

Professional Development

Systems of Catholic schools could offer all school leaders and teachers opportunities for professional development in eco-theology, Catholic Church teaching about ecological conversion and curriculum development related to Education for Sustainability. As this research has shown, school leaders are the crucial factor in shaping schools which are committed to becoming models of education for sustainable development. Teachers are the agents who make sound ecological policy become best educational practice through well developed pedagogy.

As the findings from the two schools illustrated, schools need the support of systems in researching and implementing suitable pedagogy. Neither school for example showed evidence of having any awareness of eco-literacy or Sustainable Education in the terms of Capra (1998), Tilbury (2002, 2003, 2004, 2005) and Sterling (2001, 2003, 2005) as described in Chapter 2. The role of curriculum advisers at system level can incorporate study of such models and their introduction to schools as mainstream resources to be adapted and drawn upon.

Documentation

Systems of schools need to develop public documentation that demonstrates their commitment to Education for Sustainability and outline plans for its implementation at system level and within individual schools. This would be evident in vision and mission statements, websites and strategic management plans as well as published reports. The Townsville Catholic Education Office with its Environment Education Committee and Environmental Education Policy is an example of this in practice.

Resource Allocation

Resources need to be provided to support schools in the implementation of Education for Sustainability. These could include environmental education centres similar to the Catholic Environment Centre in Queensland featured in this study and the environment centres provided by state departments of education. Resources to support school-based projects and professional curriculum advice would also need to be offered. Catholic Education Offices and system leaders could cooperate with religious orders who have invested at considerable expense in the development of ecological expertise and centres for eco-spirituality, often totally ignored as potential means of education for Catholic educators and school student groups.

The government-funded initiatives in Literacy and Numeracy development across Australian school systems in recent years could allow Catholic systems to creatively place an emphasis on eco-literacy, referred to in the literature study, as a responsible educational response to the growing public awareness of the impact of climate change and global warming that has resulted from environmental devastation.

System Ecological Integrity

The subject of this study concerned "ecological sustainability". This has been demonstrated through the literature and the field work to involve a holistic commitment that affects every aspect of a school's life. It is to be recommended then that the systems that guide and resource schools need also to reflect this seamless commitment. This could be manifested for example in organization for sustainable energy and resource use and waste management, regular auditing of these, visible inclusion of ecological themes in the religious life and practice of the organization and planning for eco-friendly, new school buildings to model best environmental practice.

6.10   Recommendations for Catholic Dioceses

This study has found that where there is strong theological and practical support from the Bishop of a diocese for the implementation of an ecological perspective in the diocesan schools, this is a significant factor in their development, as was the case with Newman School.

Based on this finding, I suggest the following recommendations for diocesan Church leaders who are the official designated authority to mandate Catholic schooling in dioceses:

Leadership Formation

Bishops and their staffs who commission and guide Catholic schools could take steps to be fully informed of the Church's teaching regarding ecological conversion and contemporary developments in eco-theology. Further, Bishops and other diocesan

leaders could adopt a stance of positive support for ecological awareness to be developed as a priority in their diocese through education, pastoral programs, liturgy and community celebrations. For example, an appreciation of current research on climate change and the role that forests have in countering global warming, could inspire a diocese to place a covenant on some forested land it owns or to purchase carbon credits to offset the amount of air travel a Bishop might need to undertake to remain connected to the universal church.

The work of Catholic Earthcare Australia, developed through the Australian Catholic Bishops' Conference, and examined in Chapter 2, is an example of Church leadership in practice. The relevant Bishops have studied and supported the research, networking, advocacy and educational initiatives undertaken by Catholic Earthcare between 2001 and 2007. This precedent needs to become best practice for all dioceses.

Diocesan Planning and Policy

Diocesan planning and policy would need to include an ecological dimension that is published for all Catholics to read and is referred to regularly as a guide to the implementation of diocesan plans.

Catholic Dioceses as Models

The Diocese itself could provide a model of ecological responsibility in all aspects of diocesan life, for example, in its use of material resources, disposal of waste, planning for capital works and use of land owned by the diocese. This would include the regular auditing of diocesan environmental practice.

Resource Allocation

Diocesan resources would need to be made available to provide education for adults and parishioners in environmental responsibility as an integral aspect of their faith practice. Diocesan resource planning could include allocation of resources to support education towards ecological responsibility through its programs and projects, for example, through an environment committee, close association with Catholic Earthcare Australia, and ecumenical links with people of other religious faiths who are environmentally aware and committed, as well as the writing of relevant materials to support adult education groups. Collaboration with non-religious agencies with expertise in sustainable living and global futures would assist dioceses in undertaking appropriate research and finding suitable models to implement.

As has been reported in Chapter 5, many of these features were present in the case of the Queensland diocese supporting the Newman School. I can only assume that if St Mary's had experienced the same level of support from its diocese, the school's journey towards ecological sustainability would have been enriched.

6.11   Recommendations for an Individual School

A Catholic school community wanting to become ecologically aware and active would need to seek opportunities for the positive factors reported through these research findings to be experienced by the school community. This would include leadership, commitment and awareness, provision of resources, professional development, engagement with the community and curriculum integration. The school would require, like the case study schools, the inspiration of good leadership as

well as adequate physical and human resources. The school would need to be proactive in building teams that would share the awareness and conviction able to bring energy and expertise to the planning and implementation phases. Such is possible, as evidenced by St Mary's and Newman School communities. The planet and our futures depend on such educational communities being offered for the education of this present generation of young people.

At the practical level, for Catholic schools wanting to begin or continue the journey toward ecological sustainability within their own specifically Catholic educational context, the Catholic Earthcare Australia resource *On Holy Ground* (2006), available on the website, provides a comprehensive set of theological, scriptural and educational resources, specifically designed for use in Australian Catholic schools. Catholic Earthcare has produced many excellent resources for schools since 2001 as referred to in Chapter 2 and to be found on the website and these resources have been made available to all Catholic schools and parishes in Australia. Regrettably, their use has not been maximised in many cases. In particular, the framework, developed for use in this research and documented in Chapter 3 (See Appendix B), to track the steps in the development of an ecologically sustainable Catholic school, has been adapted and included as a feature of the publication *On Holy Ground* and provides a useful tool for guiding Catholic schools towards ecological development.

6.12   Personal Reflections on the Research

While this qualitative piece of work was not based on any formally constructed assumptions, there were a number of findings that came as no surprise to me as an educator who had worked with schools and school development for many years. For

example, if I had been asked to predict which factor was of the most crucial importance in a school's development, I would have named the quality of leadership as that factor. Conversely, the absence of enlightened, competent leadership would have been my nominated major drawback to such development.

The findings from my research are consistent with those of Tilbury and Henderson (2004) who researched sustainability in schools and are reviewed in Chapter 2. The findings regarding the qualities of a sustainable school included:

- Leadership that places sustainability at the heart of the school life
- Whole-school participation
- Partnership between stake-holders
- Rich pedagogy that includes critical reflection, citizenship, intercultural understanding, and participation.
- Integration of Environmental Education (EE) across all Key Learning Areas
- Professional development of teachers
- Greening of the school grounds
- Access to outdoor learning areas
- Reduction of schools' resource consumption
- Planning and research to facilitate ongoing implementation relevant to both the learners and the curriculum

In order to bring this about, Tilbury and Henderson (2004) asked what formula would best work, and the following factors were found to be present in sustainable schools. These schools were found to be:

- Well resourced with Education for Sustainability (EfS) and Environmental Education (EE) expertise
- Engaged in critical reflection and developing within a 'learning organization'

- Responsive to current best educational theory and practice and able to change appropriately

- In partnership with relevant stakeholders, other Education for Sustainable Development (ESD) initiatives and ESD resources bodies

- In touch with recognised ESD frameworks that include broad socio-cultural understandings

- Accredited with awards for successful implementation

- Aligned to mandated curricula

The two case study schools included in my research, while sharing these characteristics and influential factors to some degree, did not show evidence of referring to or drawing on the body of study in ESD and EFS that has directly informed policy development in state school systems in New South Wales and other Australian states through initiatives such as the Sustainable Schools initiatives, CERES and the Gould League, described in Chapter 2. There has been a failure to draws on research such as that of Tilbury and Sterling and a failure to be part of the educational networks that have developed major initiatives in response to the United Nations conventions and conferences. I see this as a limitation in Catholic education and believe that Catholic systems could greatly benefit from being involved in dialogue and action with these organizations and initiatives. It would be reassuring to experience official delegations of Catholic educators active at state, national and global environmental conferences, sponsored by bodies such as UNESCO and the Australian Government Department of the Environment and Heritage. Participation at this level, coupled with the advantages Catholic systems enjoy through working within a religious and spiritual framework, could offer a new dimension to Education for Sustainability in schools generally. Catholic systems and individual schools could

learn from the experience of other systems and in turn contribute their unique experience as Catholic systems based on overt spiritual values.

Future Research

As a corollary to this research which addresses schools development, further work could be done to explore the ways in which Catholic systems have taken leadership of education for ecological sustainability or have failed to do so.

A further area of study that is related to this research would be an exploration of the ways in which pedagogy for ecological education could be enriched and influenced by the religious dimension of Catholic education. There is a wealth of Catholic Church official documentation addressing educational theory and practice, which takes account of both the Catholic tradition and of contemporary cultures. Examples of such documents include those from the Congregation for Catholic Education: *The Religious Dimension of Education in a Catholic School (1988), The Catholic School (1977)* and *The Catholic School on the Threshold of the Third Millenium (1997),* all cited earlier in this work. The ways in which the values and educational models enshrined in these documents could be applied to meeting the contemporary challenges of Catholic Education for Sustainability, could provide a worthy area for future study.

Further, the relationship between the commitment of Catholic social teaching to social justice and the potential links of this commitment to ecological responsibility would provide another fruitful area of research for future study. The work of Catholic thinkers such as McDonagh (1987, 1990), who combines pastoral experience among

some of the poorest people in the world in Mindanao with eco-theological expertise, can guide Catholic educators in making the connections between global poverty and ecological irresponsibility. It is no longer credible to consider human rights and responsibilities without reference to the earth and sustainable futures.

The time is right for all schools to work towards ecological sustainability, and for Catholic primary schools to take up the challenge to become "ecologically sustainable Catholic primary schools" in the terms of this research and in the words of Pope John Paul II (1990), who reminded those responsible for Catholic formation, "An education in ecological responsibility is urgent: responsibility for oneself, for others and for the earth" (p.12). St Mary's and Newman School have demonstrated how possible it is to seriously take up this challenge in the school context, and they have effectively blazed a trail for other Catholic primary schools to follow.

Reference List

- ## Cited References

Aleixandre, M. & Rodriguez, R. (2001) Designing a Field Code: Environmental values in primary school. *Environmental Education Research, 7, 6-22*.

Australian Academy of Science. (1994).*Primary investigations: a science program for primary schools*. Retrieved May 21 2006 from www.science.org.au/pi/info.htm.

Anglican Social Responsibilities Network; National Responsibility and Justice: Australian Catholic Social Justice Council. (2002). *Sustaining creation*. Sydney. Authors.

Australian Bishops' Committee for Justice, Development, Ecology and Peace. (2002) *A New Earth*: The Environmental Challenge. Sydney: Authors

Australian Catholic Social Justice Council, Uniting Church National Board of Social Responsibility, Anglican Social Responsibilities Network. (2001). *Sustaining creation.* Sydney: Authors.

Australian Conservation Foundation (2000). *Economy up- environment down*: ABS figures. Retrieved April 22, 2004, from http://www.acfonline.org.au/asp/pages/document.asp?IdDoc=1908

Australian Sustainable Schools Initiative. Retrieved November, 2004, from http://www.environment.gov.au/education/aussi/index.html

Ballantyne, R., Fien, J. & Packer, J. (2001a) School environmental education programme impacts upon student and family learning: A case analysis. *Environmental Education Research*, 7, 23-37.

Ballantyne, R., Fien, J. & Packer, J. (2001b) Intergenerational influences in environmental education: A quantitative analysis. *Australian Journal of Environmental Studies*, 17,1-7

Berry, T. (1988). *The new story: The dream of the earth*. San Francisco: Sierra Club Books.

Berry, T. (1999). *The great work* : *Our way into the future*. New York: Bell Tower.

Berry, T. & Swimme, B. (1992). *The universe story*. New York: HarperCollins Publishers.

Bevans, S. (2002). *Models of contextual theology.* New York. Orbis Books.

Bishops' Committee for Justice, Development, Ecology and Peace. (2002). *A New Earth: The Environmental Challenge*. Sydney: Author.

Board of Studies New South Wales. (1993). *Science and technology K-6*: Syllabus and support document. Sydney: Author.

Board of Studies New South Wales. (1998). *Human society and its environment*: Syllabus K-6. Sydney: Author.

Brown, L. (1990). *State of the world*. Sydney: Allen and Unwin.

Brown, N. (2004). Conscience and the ecological crisis. *Compass: A Review of topical theology*, 28, 13-18.

Burns, B. R. (2000). *Introduction to research methods* (4th Edition). Sydney: Pearson Education Australia.

Burney, L. Parliamentary Speech, N.S.W. Parliament 20/11/03. Retrieved May 20, 2007, from

http://www.parliament.nsw.gov.au/prod/parlment/hansart.nsf/5f584b237987507 aca256d09008051f3/716657f1460ccad3ca256df0001 8b225!OpenDocument

Burns, R. (2000). *Introduction to research methods*. Sydney. Longman.

Capra, F. (1998). The challenge for education in the next century. Schumacher Address. Retrieved May 13, 2005, from

http://www.ecoliteracy.org/publications/pdf/challenge.pdf

Carson, R. (1962). *Silent spring*. New York: Fawcett Crest.

Catechism of the Catholic Church. (1994). Retrieved January 12, 2008 from

http://www.christusrex.org/www1/CDHN/ccc.html

Catholic Archdiocese of Brisbane. (2003). *Attending to the sacred*. Brisbane: Authors.

Catholic Conservation Centre: *A collection of writings and speeches of Pope John Paul II*. Retrieved June 20, 2004, from http://conservation.catholic.org

Catholic Earthcare Australia (2001). *Environmental audit*. Found 22 March 2004 at www.catholicearthcareoz.net

Catholic Earthcare Australia, Brisbane Catholic Justice and Peace Commission and the Catholic Social Action Office (2004).*Let the many coastlands be glad*. Brisbane: Authors.

Catholic Earthcare Australia, Australian Catholic, Bishops' Committee for Justice, Development, Peace and Ecology. (2005). *The gift of water*. Sydney: Authors

Catholic Earthcare Australia, Australian Catholic Bishops' Committee for Justice, Development, Peace and Ecology. (2005). *Grains of Life*. (Computer Software) Sydney: Sydney Catholic Education Office.

Catholic Earthcare Australia (2005). *Climate Change*: *Our Responsibility to Sustain God's Earth.* Australia. Authors.

Catholic Earthcare Australia, NSW Department of Environmentand Heritage. (2006). *On Holy Ground.* Sydney: Authors

Catholic Earthcare Australia. (Producer) (2001).*The garden planet* [Video] Available from Bishops' Committee for Justice, Development, Ecology and Peace, 26 McKenzie St North Sydney, Australia.

Catholic Education Archdiocese of Brisbane (2003). *Attending to the sacred*. Brisbane. Authors.

Catholic Education Commission of Western Australia. (2002). *Living the vision: and so our journey continues*. [Brochure] Catholic Education: Author. PMP Print.

Catholic Education Office Archdiocese of Sydney. (1990). *Earth community education*. Sydney: Author.

Catholic Education Office Archdiocese of Sydney. (1995). *A sense of the sacred*: Foundations document. Sydney: Author.

Catholic Education Office Archdiocese of Sydney. (2006). *A sense of the sacred.* Retrieved 16 July, 2006, from http://senseofthesacred.ceo.syd.catholic.edu.au/

Catholic Education Office Archdiocese of Sydney. (2004). *Primary religious education curriculum*.Retrieved May12, 2005 from www.ceo.syd.catholic.edu.au/cms/jahia/site/reonline/

Catholic Education Office Archdiocese of Sydney. (2005). *Sydney Catholic schools: towards 2010*. Strategic management plan. Sydney: Authors.

Catholic Education Office Townsville. *Environment Education Policy*. Retrieved May 12 2005 from http://www.ceo.tsv.catholic.edu.au

Chatswood Hills State School, Brisbane. Learnscapes alive environmental education program. Retrieved Sept. 12th 2006 from http://www.chathillss.qld.edu.au/environmental.html

Comalco. *Green and Healthy Schools Awards*. Available from www.comalco.com/documents/Comalco

Cosgrove, B. (Ed.) *Attending to the sacred*: Lenten program for 2003. Brisbane. Catholic Education.

Congregation for Catholic Education (1977) *The catholic school*. Sydney: St Paul Publication

Congregation for Catholic Education. (1988).*The religious dimension of education in a Catholic school*. Sydney: St Paul Publications.

Congregation for Catholic Education. (1998). *The Catholic school on the threshold of the third millennium.* Sydney: St Paul Publications.

Congregation for the Clergy. (1997). *General directory for catechesis*. Sydney: St Paul Publications.

Crotty, M. (1998). *The foundations of social research*: Meaning and perspective in the research process. Sydney. Allen and Unwin

De Chardin, T. (1959). *The Phenomenon of Man.* New York. Harper.

Delors, J. (1996a). "Learning : The treasure within" in *Education: the necessary utopia*. An International Commission on Education for the 21st Century. Retrieved May 12, 2004 from UNESCO Website: http://www.unesco.org/delors/

Delors, J. (1996b). *Education: the necessary utopia*. An International Commission on Education for the 21st Century. Retrieved May 12, 2004 from UNESCO Website: http://www.unesco.org/delors/

Department of Education and Training Australia (2004) *Racism noway*. Retrieved 13 January, 2005 from: http://www.racismnoway.com.au/strategies/framework/

Department of Education Tasmania. (2003). Publications Services Unit.   *Essential learnings.* Hobart: Author

Department of Education Training and the Arts, Queensland Government. ((2008) *Productive Pedagogies.* Retrieved June 20, 2008 from: http://education.qld.gov.au/public_media/reports/curriculum-framework/productive-pedagogies/html/con-intro.h

Department of Environment and Climate Change NSW (2008) *Students line up for sustainable schools*. Retrieved January 14, 2008 from http://www.nationalparks.nsw.gov.au/npws.nsf/Content/dec_medi a_min_230704_sustainable_schools

Downey, M. (Ed.) (1993).*The new dictionary of Catholic spirituality*. Collegeville. The Liturgical Press.

Drengsen, A. (2005) *The selected works of Arne Naess*. British Columbia: Foundation for Deep Ecology Press.

Edwards, D. (1991). *Jesus and the cosmos.* Sydney: St Paul Publications

Edwards, D. (1992). *Made from stardust*: exploring the place of human beings within creation. Melbourne: Collins Dove.

Edwards, D. (1995). *Jesus the wisdom of God*. Sydney: St Paul Publications.

Edwards, D. (2006). *Ecology at the heart of faith: The change of heart that leads to a new way of living on earth.* New York. Orbis Books.

Eisner, E. (1979). Recent Developments in educational research affecting art education. *Art Education* 32, pp 12-15.

Fien, J. & Tilbury, D. (1996). *Learning for a sustainable environment: An agenda for teacher education in Asia and the Pacific.* Bankok: UNESCO Principal Regional Office for Asia and the Pacific.

Fien, J.,Yencken D. & Sykes, H. (2000) *Young people and the environment: an Asia-Pacific perspective.* Sydney: Routledge.

Flannery, T. (1993). *The future eaters: an ecological history of the Australian lands and peoples*. Sydney: Reed Books Australia.

Flannery, T. (2005) The *weather makers: the history and future impact of climate change*. Sydney: Text Publishing.

Flannery. A.(1975). *Vatican Council 11*: The conciliar and post-conciliar documents. Collegeville: The Liturgical Press.

Fletcher, F. (2004). Heart spirituality and the lay vocation. *Compass: A Review of topical theology*, 28, 3-11.

Fox, M. (1983). Original blessing: a primer in creation theology.Santa Fe: Bear and Company.

Glaser, B., & Strauss A. (1967). *The discovery of grounded theory*: Strategies for qualitative research. Chicago: Aldine Publishing Company.

Gorbachev, M. quoted from World Watch Institute *State of the World* Report 2005

Griffin, D. in Orr, D. (1992). *Ecological literacy*: education and the transition to a post-modern world. New York: State University of New York Press.

Gore, A. (Feature artist). *An Inconvenient Truth*. Laurie David, Lawrence Bender and Scott Z. Burns (Producers). [Motion Picture]. United States. Paramount Classics and Participant Productions.

Henderson, K. & Tilbury. D. (2004).*Whole-school approaches to sustainability*: An

international review of whole-school sustainability programs. Sydney. Australian Research Institute in Education for Sustainability (ARIES) and Department of the Environment and Heritage.

John Paul II Pope (1979). *Redemptor Hominis* Retrieved April 21, 2005 from http://www.secondexodus.com/html/vaticandocs/centralvaticandocs.htm

John Paul II Pope (1978). *Sollicitudo Rei Socialis* .Retrieved April 21, 2008 from http://www.secondexodus.com/html/vaticandocs/centralvaticandocs.htm

John Paul II Pope (1987) *Sollicitudo Rei Socialis*. Sydney: St Paul Publications

John Paul II Pope. (1990). *Peace with God the creator: peace with all of creation* New Years Day Message [Pamphlet] Sydney: St Paul Publications.

John Paul II Pope. (1991a). *Centesimus Annus* Retrieved April 21, 2005 from http://www.secondexodus.com/html/vaticandocs/centralvaticandocs.htm

John Paul II Pope. (2001b). General Audience Address, January 17. Retrieved April 10, 2003 from http://conservation.catholic.org/john_paul_ii.htm

John Paul II Pope. (1999a*). Ecclesia in Asia*. Sydney. St Paul Publications.

John Paul II Pope. (1999b). Liturgy of the Word celebrated in Zamosc, Poland on June 12, 1999. Retrieved April 10, from http://conservation.catholic.org/background.htm

John Paul II Pope. (2001b). General Audience Address, January 17. Retrieved April 10, 2003 from http://conservation.catholic.org/john_paul_ii.htm

John Paul II Pope.(2001a) *Ecclesia in Oceania* Retrieved April 21, 2005 from http://www.secondexodus.com/html/vaticandocs

King, Y. (1989) Cited in Plant, J. (1989) (Ed.). (1989).*Healing the wounds: the promise of eco-feminism*. Philadelphia: New Society Publications.

Kowalski, S. (2003). Growing gains. *Newsmonth 23.9* (newspaper of the NSW/ACT Independent Education Union)

Kwan, T. & Miles, J. (1998). In the words of children and young people: The opinions and concerns about their environments of some Brisbane school students. *Australian Journal of Environmental Studies*, 14, 11-18.

Lang, J. (1999) Tracing changes in teacher environmental education understanding. *Australian Journal of Environmental Education*, 15/16, 57-64.

Leo XIII Pope. (1891*). Rerum Novarum.* Retrieved April 21, 2005 from http://www.secondexodus.com/html/vaticandocs/centralvaticandocs.htm

Levi-Strauss. C. (1966) *The Savage Mind.* Chiago: University of Chicago Press

Lines, W. (1991). *Taming the Great South Land*: History of the conquest of nature in Australia. Sydney: Allen and Unwin.

McDonagh, S. (1987). *To care for the earth*. Manila: Claretian Publications.

McDonagh, S. (1990). *The greening of the church* London: G. Chapman.

McFague, S. (1987). *Models of God*: theology for an ecological, nuclear age. London: SCM Press Ltd.

McFague, S. (1990). Imaging a Theology of Nature: The World as God's Body. Essay included in Birch, C., Eakin, W. & McDaniel J. (1990) *Liberating life:* Contemporary approaches to ecological theology. New York: Orbis Books.

Mc Fague, S. (1993) *The body of God:* An ecological theology. Minneapolis: Fortress Press.

May, B. (2005, January 27). Under-informed over here. *The Guardian*. Retrieved October 21, 2005 from http://www.guardian.co.uk/science/2005/jan/27/lastword.environment

Maykuk, P. & Morehouse R. (1994). *Beginning qualitative research*: A philosophical and practical guide. London: The Falmer Press.

Meadows D. H., Meadows D.L., Randers J. & Berhans III W. (1972). *The Limits to Growth*. London: Earth Island Limited.

Miles, M. & Huberman, M. (1994). *Qualitative data analysis* (2nd Edition). California: Sage Publications, Inc.

Ministerial Council on Education, Employment,Training and Youth Affairs (MCEETYA), (1999). *The Adelaide declaration on national goals for schooling in the twenty-first century*. [Brochure] Retrieved March 24, 2003, from http://www.dest.gov.au/schools/adelaide.htm

Moltmann, J. (1985). *God and creation: an ecological doctrine of creation*. The Gifford Lectures. London, SCM Press Ltd.

Morgan, D. (1997). *Focus groups for qualitative research* (2nd Edition).California: Sage Publications, Inc.

Mortier, J. & Aboux, M. (1966). *Theilhard de Chardin album.* London: Collins.

New South Wales Department of Education and Training. (2002). Productive Pedagogy. *Inform* magazine. March, 2002. Authors.

New South Wales Department of Education and Training Curriculum Support Directorate. (2001). *Environmental education policy for schools*. Sydney: Authors.

New South Wales Department of Education and Training, Curriculum Support
      Directorate. (2001). *Sustainable Schools Project*. Found at:
      http://www.curriculumsupport.nsw.edu.au/enviroed/index.cfm?u= 3&i=127
      New South Wales Sustainable Schools Program (2002) Retrieved 24 October,
      2005 from
      http://www.schools.nsw.edu.au/events/sponsoropp/sustainable/index.php

New South Wales Department of Education and Training Curriculum Support
      Directorate. (2008). *Quality teaching in NSW schools*: Retrieved June 20,
      2008 from:
      http://www.curriculumsupport.education.nsw.gov.au/secondary/technology/7_
      10/technology/prog_tool_template/tm_pedag_design.pdf

Neuman W. (2003). *Social research methods*: Qualitative and quantitative approaches
      (5th Edition). Boston: Allyn and Bacon.

O'Murchu, D. (1997). *Reclaiming spirituality*. Dublin: Gill and Macmillan.

Orr, D. (1992). *Ecological literacy*: education and the transition to a post-modern
      world. New York: State University of New York Press.

Patton, M. (2002). *Qualitative research and evaluation methods*. California. Sage
      Publications.

Paul VI Pope (1971). *Octogesima Adveniens*. Retrieved April 21, 2005 from
      http://www.secondexodus.com/html/vaticandocs/centralvaticandocs.htm

Print, M. (1993). *Curriculum development and design*. 2nd ed. St. Leonards, NSW:
Allen & Unwin.

Pestel, E. (1972) *Short version of the limits to growth*. Retrieved 20th October 2005
      from http://www.cluboframe.org/docs/limits.rtf

Plant, J. (Ed.). (1989). *Healing the wounds: the promise of eco-feminism*
      Philadelphia: New Society Publications.

Radford Ruether, R. (1992). *Gaia and God: An ecofeminist theology of earth healing*.
       San Francisco: Harper San Francisco.

Rambo, L. (1993). *Understanding religious conversion*. New Haven and London.
      Yale University Press.

Robin, L. (2002). *Nationalising Nature*: Wattle Days in Australia.
      Retrieved June 5, 2006 from http://cres.anu.edu.au/people/academicstaff.php

Australia. Catholic Earthcare Australia.

Salite, I. (1998). An ecocentric paradigm: an important tool forteachers of environmental education. *Australian Journal of Environmental Education*, 14, 81-85.

Schmidz, K. (2002). *Learning from the earth*. Retrieved June, 12, 2004 from www.pcwon.com/allsouls/minister/sermons/LearningFromThe_Earth.html

Schneiders, S. (1990). *Beyond patching: faith and feminism in the Catholic Church* : The Anthony Jordan Lectures. New York, Paulist Press.

Seasons for Growth Program. (2004).Retrieved September 10, 2005, from www.goodgrief.org.au/nav.htm

Serventy,V. (1988). *Saving Australia*: A blueprint for survival. Sydney: Child and Associates.

Share, J. (2005). *Transformative media education*. Retrieved September 8, 2007 from http://www.paulofreireinstitute.org/freireonline/volume1/1share2.html

Sisters of Mercy Australia. (1993). *National Chapter Acts*. Retrieved October 4, 2005 from http://www.mercysisters.org.au/about/vision.html

Stanford Encyclopedia of Philosophy. [Data file] Retrieved28/5/07 from http://plato.stanford.edu/entries/epistemology/-21.

Sterling, S. (2001). *Sustainable education*: Re-visioning learning and change. Bristol: Green Books Ltd

Sterling, S. (2003). *Sustainable education: Putting relationships back into education.* Retrieved June 20, 2008 from http://www.sustainable.ie/convergence/magazine/pdffiles/ SustainableEducation_StephenSterling.pdf.

Sterling, S. (1998). *A Report to DfEE/QCA on Education for Sustainable Development in the Schools Sector from the Panel for Education for Sustainable Development* Retrieved June 20, 2008 from http://www.defra.gov.uk/environment/ sustainable/educpanel/1998ar/ann4.htm

Sterling, S. (2005). WWF *Linkingthinking*. Retrieved June 20, 2008 from www.wwf.org.uk/filelibrary/pdf/wwf_**linkingthinking**_doc.pdf

Strauss, A. & Corbin, J. (1998). *Basics of qualitative research*.(Second Edition).

California: Sage Publications, Inc.

Sydney Water. (2004) *Water Wise Project*. Retrieved from

Retrieved on 17January, 2008 from

http://www.sydneywater.com.au/Search/index.cfm

Tilbury, D., Stevenson, R., Fien, J., & Schreuder, D. (Eds). (2002*). Education and Sustainability: Responding to the global challenge.* Cambridge: IUCN.

Tilbury, D. & Henderson, K. (2003). Education for Intercultural Understanding in Australian Schools: A Review of its Contribution to Education for a Sustainable Future. *Australian Journal for Environmental Education*, 19, 81-95.

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

Tilbury, D and Wortamn, D (2004) *About EsF.* Retrieved July 12, 2008 from: http://www.aries.mq.edu.au/portal/about/index.htm

Today Shapes Tomorrow (1999) Discussion Paper on Environmental Education. Retrieved 12 January, 2008 from www.environment.gov.au/education/publications/discpaper/index.html - 10k -

Toohey, C. Bishop. (2004). *Grains of Life*- Introduction. (Computer Software) Sydney: Sydney Catholic Education Office.

United Nations Department of Economic and Social Affairs, Division for Sustainable Development. (1992). *Agenda 21*. New York: Author.

United Nations Conference on the Human Environment 1972. *Action Plan 1972*. Retrieved May 17, 2005, from http://www.unep.org/Documents

United Nations Conference on the Human Environment. (1972) *Stockholm declaration and action plan*. Available from http://www.ciesin.org/TG/PI/TREATY/unced.html

United Nations Conference on Environment and Development. (1992) *Rio declaration on environment and development*. Retrieved October 10 from http://www.unep.org/Documents

United Nations World Commission on Environment and Development. (1987) *The Bruntland report*: our common future Retrieved May 17, 2005, from

http://www.unep.org/Documents

United Nations Education, Scientific, and Cultural Organization (UNESCO). (1976). *The Belgrade charter*: A global framework for environmental education. Retrieved 12 January, 2008 from portal.unesco.org/education/en/file_download.php

United Nations Education, Scientific, and Cultural Organization (UNESCO). (1977). *Tbilisi declaration*. Retrieved 12 January, 2008 from http://www.gdrc.org/uem/ee/tbilisi.html

United Nations World Summit on Sustainable Development. (2002). *Johannesburg plan of implementation*. Retrieved May 17, 2005, from http://www.un.org/jsummit/html/basic_info/basicinfo.html

Van Manen, M. (1990, 1992). Researching lived experience: Human Science for an action sensitive pedagogy. The University of Western Ontario: The Althouse Press.

Van Matre, S. (1990). *Earth education*: A new beginning. West Virginia. The Institute for Earth Education.

Van Matre, S. (2007). *A Letter of Introduction to Earth Education*. Retrieved January 12, 2008, from: http://www.eartheducation.org/who-letter.asp

Visy. (2004), *Visy Recycling* Retrieved September 12, 2005 from http://www.visy.com.au/recycling/

Whitehouse, H. (2001). 'Not greenies' at school: Investigating the discourses of environmental activism in regional Australia. *Australian Journal of Environmental Education*, 17, 71-75.

World Conservation Union. (2005). *Why Does the World Need the World Conservation Union*? Retrieved 13 May, 2005 from http://www.iucn.org/en/about

World Watch Institute. (2005) *State of the World Report*. Retrieved May 13, 2005 from http://www.worldwatch.org

Wyld H. C. & Partridge H. D. (Eds.). (1968).Websters universal dictionary. London. Routeledge and Kegan Paul Ltd.

- **Selected Websites and Journals Consulted**

American Nature Study Society. (2006). Retrieved September 16, 2006, from
    http://hometown.aol.com/anssonline/

Australian Sustainable Schools Initiative (AuSSI) (2005). Retrieved July 10, 2008
    http://www.environment.gov.au/education/aussi/about.htmlfrom:

Australian Association of Environmental Education (2008). Retrieved 14 August,
    2008, from http://www.aaee.org.au/about.htm

Australian Catholic Bishops' Conference (2002) Retrieved 12 January, 2008 from
    http://www.acbc.catholic.org.au/

Australian Conservation Foundation

Australian Journal of Environmental Education. Australia.

Australian Association of Environment Education (AAEE). Retrieved 12   January,
    2008 from www.aaee.org.au/publications/ajee.htm

Australian Museum Online. John Gould Inc. Retrieved September 9, 2006, from
    http://www.amonline.net.au/exhibitions/gould/naturalist/gould_league.htm

Canadian Journal of Environmental Education (CJEE). Canada.

Canadian Network for Environmental Education and Communication (EECOM) and
    Lakehead University. Retrieved from
       http://openjournal.lakeheadu.ca/index.php/cjee/about

Caritas Australia Website (2007). Found at www.caritas.org.au/education/

Catholic Diocese of Townsville website. Found April 20, 2005, at
        http://www.tsv.catholic.org.au/

Catholic Earthcare Australia (2001). Found 22 March 2004 at
        www.catholicearthcareoz.net

Centre for Ecology and Spirituality. Retrieved September 14, 2005, from
        http://www.edmundrice.org/glenburn/

Centre for Education and Research in Environmental Strategies (CERES). Retrieved
        August 24, 2004, from http://www.ceres.org.au/index1024x768.htm

Centre for Ecoliteracy (1995). Retrieved 12 January, 2008 from
        http://www.ecoliteracy.org/pages/ecologicalit.html

Clean Up Australia Campaign

Edmund Rice Centre for Ecology and Spirituality. (2005).
        Retrieved May 12, 2005 from http://www.edmundrice.org.au/glenburn/

Foundation for Deep Ecology. Retrieved 12 January, 2008 from
http://www.deepecology.org/mission.htm

Great Barrier Reef Marine Park Authority Website found at
www.gbrmpa.gov.au.

Global, Environmental and Outdoor Education Council (GEOEC) Retrieved 24
January, 2007 from http://www.geoec.org/

Gould Group (formerly The Gould League). (2006). Retrieved 12 January, 2008 from
www.gould.edu.au/

Hands On Learnscapes Incorporated (1997). Retrieved 12 January, 2008 from
http://www.learnscapes.org/oldsite/index_org.html

Mission and Justice Education Program, Sydney. (1978-2002). Referred to in
reference retrieved 12 January, 2008 from
www.acu.edu.au/graduate_association/in_honourable_company/reverend_fath
er_cyril_thomas_hally_ssc_jcl - 23k -

National Aboriginal and Torres Strait Islander Day of Celebration (NAIDOC)
Available from http://www.

National Conservation Strategy for Australia (NCSA) (1996). Retrieved 12 January,
2008 from
www.environment.gov.au/biodiversity/publications/strategy/index.html
National Strategy for the Conservation of Australia's Biological Diversity.
(1996). Available at
http://www.environment.gov.au/biodiversity/publications/strategy/index.htmlna
idoc.org.au/

Oz GREEN (2008) Retrieved 12 January, 2008 from
http://www.ozgreen.org.au

Pontifical Academy of Sciences. Documents available at
http://www.vatican.va/roman_curia/pontifical_academies/acdscien
/documents/rc_pa_acdscien_doc_20000530_survival_en.html

St Mels School Campsie. Website. Found July 4, 2004 at:
http://www.stmels.campsie.syd.catholic.edu.au

The Mercy Foundation Found at Retrieved October 4, 2005 from
http://www.mercysisters.org.au/about/vision.html

The World Conservation Union (Also known as the International Union for the

Conservation of Nature (IUCN). Retrieved 12 January, 2008 from
http://www.iucn.org/en/about/

WaterWise. at http://www.nrw.qld.gov.au/water/saverscheme/

-Appendix A - CLARIFICATION OF TERMS

TERM	MEANING	SOURCE
Ecology	The science of the interrelationships between living organisms and their environment.	Orr, D., & Soroos, M.(1979) The global predicament: ecological perspectives on world order (p.4). North Carolina. University of North Carolina University Press.
Ecosystem	The plants and animals of an ecological community together with their environment, forming an interacting system of activities and functions regarded as a unit.	New South Wales Department of Education and Training. (2001). *Environmental education policy for schools (23)*.Sydney. DET Publication, Curriculum Support Directorate.
Deep Ecology	The belief that the human species is no more than a member of the biotic community. Examines the symbolic, psychological, and ethical patterns of destructive relations of humans with nature.	Young, J. (1991) *Sustaining the Earth* (p.128). Sydney. New South Wales University Press Radford Reuther, R. (1992) *Gaia and God: an ecofeminist theology of earth healing. (p. 2).* San Francisco. Harper.

Ecofeminism	Ecofeminism brings together ecology and feminism and explores how male domination of women and domination of nature are interconnected, both in cultural ideology and social structures.	Radford Reuther, R. (1992) *Gaia and God: an ecofeminist theology of earth healing. (p. 2)*. San Francisco. Harper, a Division of Harper Collins Publishers.
Environmental Education	The process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. EE also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality.	International Union for the Conservation of Nature (IUCN; 1971) Available at http://www.botany.uwc.ac.za/inforeep/what's_EE2.htm (p.2) http://www.epa.gov/enviroed/eedefined.html Also defined in UNESCO, Tbilisi Declaration, (1978). Cited in the reference above for IUCN.
Ecologically Sustainable Development (ESD)	A pattern of activities which meets the needs f the current generation without prejudicing the ability of future generations to meet their needs. It requires that there is no unreasonable depletion of resources. There must be no significant damage to the environment, and there must be no significant decline in social stability.	New South Wales Department of Education and Training. (2001). *Environmental education policy for schools. (p.23)* Sydney. DET Publication, Curriculum Support Directorate.

Sustainable Society	A sustainable society is one that satisfies its needs without jeopardizing the prospects of future generations	Orr, D. (1998) *Ecological Literacy: Education and the Transition to a Post-Modern World. (p. 23).* New York. State University of New York Press.
Sustainable education	A paradigm change in the culture of education so that it both develops and embodies the theory and practice of sustainability in a way which is critically aware. This would be a transformative paradigm that values, sustains and realizes human potential *in relation to* the need to attain and sustain social, economic and ecological well-being, recognizing that they are deeply interdependent.	Sterling, S. (2001). *Sustainable education: re-visioning learning and change (p.21).* Bristol. Green Books Ltd.
Education for Sustainability (EfS)	Education for sustainability provides a tool to assist and engage us in negotiating (a sustainable) future and deciding the consequences of our decisions. This means that education is more than the traditional practice of Environmental Education, which focuses on teaching and learning about, and 'in' the environment. Instead, education for sustainability seeks a transformative role for education, in which people are engaged in a new way of seeing, thinking, learning and working.	Adapted from Tilbury, D and Wortamn, D (2004

Creation Spirituality	Creation spirituality celebrates goodness in the totality of life and the struggle of humanity to be compassionate and to find its meaning joyfully within the rest of nature and with a sense of justice.	Collins, P. (1995) *God's earth: religion as if matter really mattered (164)*.Melbourne. Dove, an Imprint of Harper Collins Publishers.
Environmentally Active School	This is a term used in the New South Wales Department of Education and Training *Environmental Education for Schools Policy* (2001). The term is not directly defined in the policy, but is used to describe a school that has integrated environmental education into its total curriculum and has developed structures for management of resources, waste disposal and use of the school environment that are consistent with sound environmental understanding and ethics.	New South Wales Department of Education and Training *Environmental Education for Schools Policy* (2001) Pgs 20-21.

STEPS IN BECOMING AN ENVIRONMENTALLY ACTIVE CATHOLIC PRIMARY SCHOOL

EE=Environmental Education, HSIE= Human Society and its Environment, RE= Religious Education

Step	Whole School Planning	Religious Dimension	Curriculum	Management of Resources	Development of School Site
1. Pre-Awareness	Lack of interest in Environmental Education. Elementary understanding of concept of sustainability.	There is little understanding of the Church's call to ecological conversion and its implications for the total life of the school.	Commitment to environmental issues in teaching and learning is low. Topics taught in unplanned way, without fulfilling EE syllabus outcomes.	EE and environmental issues are not considered in school purchasing plans, resource use or waste management.	No consideration is given to environmental impacts on school grounds, nor their potential for EE, for example through gardens where children can cultivate, experience nature and engage in meditation.
2. Developing Awareness	Executive and staff are concerned about lack of EE and wish to take action. Professional learning in EE has begun at some level.	There is an elementary understanding of the links between Catholic beliefs and EE. There is some whole-school awareness expressed occasionally, through, for example, whole school liturgy, assembly, and the newsletter.	Individual teachers promote EE where appropriate through the curriculum, eg. In RE, HSIE and Science and Technology. Some discussion may occur in other Key Learning Areas; however, there is no hands-on immersion or experience for children.	Individual teachers promote EE activities for sound waste management. There is little Executive support to encourage whole-school best practice. Purchasing does not consider environmental ethics.	Landscaping of the school lacks long-term planning, without consideration of EE. Goals limited to safety and provision of shade, seating, play equipment. (Planning for new buildings and development does not consider EE opportunities or sustainability as a goal.)
3. Planning	An Environmental Management Committee is formed to lead planning with staff, students and community representatives. An environmental audit for the school is planned. Ref. *An Environmental Audit-Towards Environmental Futures Avail.www.catholicerathcareoz.net.au*	Planning for staff development includes focus on Creation theology and Creation Spirituality as a basis for understanding the Church's call to "ecological conversion" (Pope John Paul 11, 1990)	A Scope and Sequence is prepared that includes EE across all Key Learning Areas. Policy is reviewed to ask, Is the school a learning culture? Is learning reflective, co-operative, relevant, student-centred, in touch with earth systems?	The Environmental Management Committee of staff, students, and parents arranges for an audit of resource usage (power and water), purchasing policy and waste management systems.	A Grounds Sub-committee with community and student representation is formed to: --plan for environmentally friendly development of the school grounds. -plan for hands-on experience within learning, eg. gardens, pond, bird life. (Building Committee briefed on sustainability principles)

Step	Whole School Planning	Religious Dimension	Curriculum	Management of Resources	Development of School Site
4. **Implementation**	An Environmental Management Plan exists to guide policy and practice overseeing all aspects of development towards becoming a sustainable school. An environmental audit of the total life of the school (and parish?) has been carried out.	Professional development opportunities are provided for staff awareness raising regarding: -"Ecological conversion" -Scriptural and Catholic teaching about ecology -sustainability -Creation Theology, -Creation Spirituality -Implications for RE. <u>Resource</u>: Video *The Garden Planet*	Following the Scope and Sequence development, environmental outcomes across all Key Learning Areas are sequenced for student learning and reflected in classroom practice. Models of good environmental practice within the life of the school assist classroom learning.	An action plan is developed as a result of the audit to encourage digital publishing, sustainable waste disposal, green energy provision (eg. solar panels, use of natural lighting, green energy purchase, insulation and natural light and air flow), water conservation (eg. using rain-water tanks to augment supply, taps secured), environmentally sound purchasing, eg. recycled paper use.	An audit of the school grounds has been carried out, with student involvement, as part of the whole-school audit. Short and longterm goals are articulated within the school's strategic plan for sustainable development and environmental awareness through the use of the grounds and school plant. (Building Committee includes planning for a sustainable school site development).
5. Consolidation	All members of the school community understand the Environmental Management Plan and are implementing it to some extent in curriculum planning, classroom practice and the general life of the school.	The implementation of the Religious Education curriculum is informed by the areas explored in Step 4. School liturgies, prayers, assemblies, newsletters and general school life reflect a whole school commitment to creation spirituality and sustainable practice as an expression of ecological conversion.	All school events are consistent with EE curriculum outcomes. There is active student involvement and leadership in good environmental practice. Hands-on and field experience is the norm.	Good practice in the purchase, use and disposal of resources is being trialled and evaluated. Waste disposal systems are consistent with the curriculum aims and outcomes. Staff and students are committed to making this work.	Goals for the grounds that have been developed are progressively being implemented and there are convincing, visible developments for students, families and staff to celebrate. Teachers systematically plan to use the grounds for environmental education. (New school is being built for long-term sustainability using best practice)
6. Sustainability The school can be considered to be model, sustainable school.	The Management Plan is being systematically implemented in all aspects of school life as an integral part of the school's overall strategic plan.	Christian responsibility to respect God's Creation and live in harmony within the Earth Community fully informs all policy and practice within the total life of the school. There are visible manifestations of this at all levels.	Opportunities for EE are maximised through all learning experiences. The school is a model for sustainable living and learning.	Resource usage and waste management are integrated across the school and best practice, based on principles of sustainability, is embedded within the life of the school.	Grounds development planning is completed and offers a sustainable, attractive context for environmental education that is widely recognised as outstanding. (New school is a model)

Adapted- Trish Hindmarsh(2004) from the DET NSW Policy Document <u>Environmental Education Policy for Schools</u> (2001), to include the religious dimension within a Catholic school setting.

Appendix E. *Letter of Application for Permission to Research in Townsville Diocese*

22nd September 2004

Mr Mike Byrne, Director of Schools,
Townsville Diocese,
Queensland

Dear Mike,

I am a member of the Advisory Committee for Catholic Earthcare and a Regional Consultant responsible for a number of primary schools in the Inner Western Region of Catholic Education Office Sydney.

I am writing to make a request regarding some study I am undertaking with ACU Sydney as a Doctor of Education research candidate. My Research proposal is titled *Towards an Ecologically Sustainable Catholic Primary School.* The research methods proposed include two primary school case studies and a number of focus groups with Principals in our Region.

I would appreciate an opportunity to visit your diocese during the week beginning the 15th November to gather some data through interviews at The Marion School and to connect with Paul Lucas, who is my major contact. Paul works closely with us as a member of the Catholic Earthcare Australia Advisory Committee. Initial contact has been made with both Paul and Karen Pearce about their agreement and availability and they have indicated a willingness to work colaboratively with me.

Our Director, Mark Turkington, and Executive Director, Brother Kelvin Canavan, are supportive of this proposal, and have given permission for me to engage our Principals during term four in some focus group research work here in the Inner West. One of our schools here is proposed as a case study school, together with The Marion School. All contact with schools would be within the strict ethical guidelines of the University, and ethical clearance for this work was granted in July. In the final writing of the thesis, the case study schools would be identified as "School A" and "School B". I intend to negotiate structures and times with Karen so that there would be minimal disruption to the school program.

Thankyou in anticipation for your willingness to consider this proposed visit to Townsville. I am excited at the possibility of learning from the work being done in educational settings to respond to the Pope's call for "ecological conversion". I am keen explore ways that students can be engaged in active learning to foster environmental responsiveness and responsibility.

Yours sincerely,

Trish Hindmarsh.

Appendix F. *Consent Form for Focus Group Participants*

✛ACU National

School of Religious Education

CONSENT FORM   (for Focus Group participants)

TITLE OF PROJECT: *TOWARDS AN ECOLOGICALLY SUSTAINABLE CATHOLIC PRIMARY SCHOOL*

SUPERVISORS: - DR CAROLINE SMITH, DR ROSS KEATING

STUDENT RESEACHER: TRISH HINDMARSH

PROGRAM: Doctor of Education

I..(the participant) have read and understood the information contained in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to participate in this activity, realising I that I can withdraw at any time. I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

NAME OF PARTICIPANT: ....

(Block Letters)

SIGNATURE. ....DATE.....................

SIGNATURE OF PRINCIPAL SUPERVISOR........................

DATE...........................

SIGNATURE OF STUDENT RESEARCHER........................

DATE...........................

Appendix G. *Information Letter to Participants*

✚ ACU National

School of Religious Education

INFORMATION LETTER TO PARTICIPANTS
       Staffs of School A and School B

TITLE OF PROJECT: -
TOWARDS AN ECOLOGICALLY SUSTAINABLE CATHOLIC PRIMARY
SCHOOL
       SUPERVISORS: - DR CAROLINE SMITH, DR ROSS KEATING
       STUDENT RESEARCHER: TRISH HINDMARSH
       PROGRAM: Doctor of Education
       Dear Participant,

   You are invited to participate in this research project. The study aims to identify the characteristics of an ecologically sustainable Catholic primary school and the conditions that support the development of such a school.
To investigate this, I intend to study two Catholic primary schools, one of which is yours, that have a commitment to ecological sustainability and have begun to develop learning and organisational structures to support the practical implementation of this commitment. One school, School A, is in Sydney, and the other, School B, is in Queensland.
   In addition, I hope to gather some primary Principals together in focus groups to discuss how such a school might look, and what conditions might make it possible for a school to become a good model of environmental practice for the 21st century.

   Principals and teachers are very busy people, and I would hope to carry out my data gathering in the case study schools with the minimum of disruption to your school programs. The fieldwork would be carried out during a number of school visits during a dedicated week at the beginning of Term 3, and would to include the following components:

❖   an interview with the Principal, Assistant Principal and relevant teachers.
The interviews would be informal and conversational rather than formal.
Interview questions would include the following questions as a guide to the conversation.
How did your school become committed to environmental education?
Who were the people most influential in this development?
What helped the development?
What hindered it?
Where do you think your school sits at present within the table
Steps in Becoming an Environmentally Active Catholic Primary School? (Appended)
What do you think would help the continuing development of good policy and practice?
❖   viewing of relevant documentation, for example a school plan or curriculum implementation document, evidence of reflections related to ecology and environmental studies, any student work samples associated with environmental studies.
❖   -a visit to any part of the school site that has been developed to take account of Education for Sustainability.
❖   -possible attendance at a school meeting related to planning for this aspect of the school life.

   I would be present in the school as a participant observer, taking notes about my observations with the intention of identifying characteristics of the school and factors that have influenced the development of its policies and practices in environmental education.
   I believe this project will address ways in which the Catholic school can respond to the invitation issued through the Pope's call to "ecological conversion".

   Members of the school community should feel completely free to participate in this research project or not, or to discontinue participation at a later time.
   Confidentiality is assured for individual staff contributors, as they will not be identified in the research. The two participating case study schools will not be named.
   Further information about this project can be gained from Principal Supervisor:

Dr Caroline Smith, Senior Lecturer
On telephone number 03 99533281 nin the School of Education
Australian Catholic University,
St Patrick's Campus
Alexander Parade,
Melbourne, 3000.

Participants will be given progressive feedback about the Project and an opportunity to read the results when available.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

If, during the course of participation in this study, you have any concerns about the process and procedures that have not been satisfactorily addressed by the researcher or the Supervisor, you may write to the Chair of the Human Research Ethics Committee at:

Chair, HREC
C/o Research Services
Australian Catholic University
Strathfield Campus
Locked Bag 2002
Strathfield
Telephone 02 9701 4093
Fax 97014350

Any complaint will be treated with confidence and fully investigated.

If you agree to participate in this project, you should sign both copies of the Consent Form, retain one copy for your records and return the other copy to me.

With sincere thanks, and hoping we can work collaboratively through this project for the further development of excellence in Catholic education.

Trish Hindmarsh

Appendix H. *Sample of Analysis Codes Used in Data Collection*

CODES USED IN RECORDING I needed to try out various categories of "Factors" and "Barriers" to be recorded in the research. The following are the ones that emerged through the interviews.-

Factors supporting development are in red.
- FPL Principal Leadership
- FMES Maximising Existing Structures
- FSH Significant Helper
- FCL Curriculum Links
- FTO Taking Ownership
- FJEN Joy in experiencing Nature
- FPS Parent Support
- FRD Religious Dimension
- FEC Ecological Center
- FPD Professional Development
- FST Spirituality for Teachers
- FSLC Supportive Local Council and Community
- FDS Diocesan Support (Including Bishop)
- FLNE Local Natural Environment
- FTD Teacher Dedication
- FWA Winning an Award
- FLTC Long Term Commitment
- FHL Holistic Learning
- FPP Practicality of Project
- FSS System Support (including Director)
- FGM Good Management

Barriers to development are in purple

- BSI Sustainability of Program
- BLTI Lack of Teacher Initiative
- BCR Community Resistance
- BHWI Hard Work Involved
- BTR Time Restrictions
- BFC Financial Constraints
- BLPL Lack of Principal Leadership
- BII Industrial Issues
- BLK lack of Knowledge

THE DIOCESE AND ECOLOGY
What explains the commitment of this diocese to ecology?

FDS Twenty years ahead of other dioceses in thinking and planning. Both the shortage of priests and the presence of open-minded priests have stimulated lay leadership in the diocese. Since the early 80's there have been Diocesan Pastoral Assemblies. They enabled people to dream, put forward ideas, with the guarantee of being heard by Bishop Faulkner who believed in such consultation, and in the changes of Vatican 11. People who wanted to be involved were able to be and carried the agenda forward. The model FRD was based on the YCW model-see, judge and act. Bishop Ray Benjamin continued that and believed in the people-centered Church, supporting alternative ways, eg. If no priest were available, laity could lead Sunday celebrations. This was not a Basic Christan community model. The Lumko method was examined and rejected. The model was distinctive for the diocese. It involved reading the signs of the times through that.

In the development of a specifically ecological thrust as one of the signs of the times, a FSS key person was Sr Mary McDonald, former Catholic Education Director. She had FRD FST studied ecology and eco-spirituality. Groups of teachers were taking children to Paluma Environmental Education Center (Qld FMESDept. of Education) in the mid 70's. The Department has always been way ahead of Catholic Education in this, and Catholic Education worked closely with the co-ordinator, writing programs for environmental education. There was no particular angst or anger when Catholic Education needed to find an alternative to the Department Centre and build its own at Cathpolic Environment Centre, and there is an excellent relationship between the two centres.

FRD FST The Former Prinicpal went to study in the mid-80's at the Regis Centre in the States and FSS dreamed a dream which led to a conversation when he came home with………………(the Director). Both had the same dream- that one day the diocese would have something on Magnetic Island or elsewhere for Catholic Education. In the dreaming about the Centre, questions needed to be asked- Was it to be another school house? Or something

wider? Could it also be used by families, other groups etc. It was decided to design a structure that would lend itself to adult formation, retreats, spirituality, family ministry. The focus was on ecology from the beginning. FDS Bishop Benjamin was very enthusiastic. He had been the parish priest of Yepoon and became the Vicar General of the Diocese. The Benedictines had set up a center while he was there. Both Bishops Faulkner and Benjamin were enthusiastic about spirituality and spiritual formation in the diocese. The House of Prayer was started for this purpose. Bishop Benjamin was himself an explorer of spirituality (classic guitar). Some of the priests were influenced. Some wanted the BCR (priests) traditional Church model, and thought that Bishop Faulkner was too compliant. Some of the priests are still involved in the prayer life and spiritual formation of the diocese.
Question: Does this influence the overall reflective quality of the diocese?

During the 80's Director of Education was sacked, and one of the priests, ………., was the interim RE Co-ordinator. He began to take the REC's to an environmental centre and this FST has been ongoing since that time. Teachers too have opportunities to choose a spirituality course they would like to attend.. This has developed from the general commitment of CEO to the spiritual formation of its teachers. Releasing people for 3-4 days at the House of Prayer is the norm. Christian meditation is now a formal offering. FST There are pilgrimage type retreats. The Director believes the climate in the schools is much more supportive of ecological spirituality now as a result of the sustained, continuous development of offerings to suit the various age groups. A major commitment of Catholic Education funds has been made to this. Fostered by the last two Directors, but initiated by and has survived ever since. ………… is now the Leader of the the nuns involved.
BARRIERS
-BFC FINANCE Whatever is done in Townsville is challenged by lack of money. It is a struggling diocese. That has been a blessing really. Rockhampton has been very affluent and is an older diocese. It is an initial hurdle, because in the beginning of a new project (eg. Josephite project "Western Ministry" there is a struggle for funds)- People have to fall back on their own resources, raffling a bullock). At times people have found that defeating and frustrating. At present there is a paper form the Council of Priests to systematize funding for all parishes, following the long-standing practice of the school system. Each parish to contribute to the common fund. As a result,

people have a sense of the wider community, and this is developing now for parishes as well.

BARRIER DISTANCE This is a hurdle to development eg. You can't call anything "Townsville". This would be seen as exclusionist by the outlying parishes and schools- "Diocesan" is a preferable term. There is some frustration out west, expressed in some cynicism towards initiates like Catholic Environment Centre. There is "tyranny of distance" when Catholic Education staff are not seen very frequently. People then form sub-groups eg. The "Western Roundup" is held with the western parishes, who do feed agenda into the diocese but have their own local identity.

-BCR Pockets of Resistance from certain priests, with some sabotage of diocesan initiatives such as Catholic Environment Centre. Catholics United for the Faith write to the Bishop expressing resistance. There is not always good support given to the Bishops.

-BLK Teacher awareness of the curriculum, including an outcomes-based approach and links with environmental education needs development and there is change fatigue in evidence with all the rapid curriculum development of recent years.

-BLK BCR A big number of Catholics still see ecological vocation as "other", not integral to their Baptismal commitment. Allied to the general lack of awareness of theology and scripture and Church teaching.

FACTOR IN SUPPORT
-Factor Catholic Earthcare's existence The development of Catholic Earthcare has been a factor in all this. When the video was launched, the Bishop gained enormous kudos as a new Bishop. Priests and parishes were proud. Principals previously were in doubt about how wisely the money was being spent on Catholic Environment Centre. Some would have had other plans. (Christian Bros. schools)

-Opennes to change. Some people have made the change. In 2004, a network of three schools with Co-ordinators have been meeting regularly and sharing good practice. Outcomes-based planning connects the curriculum.

What inhibited and supported development at Marion?

BARRIERS
BLTI Individual TEACHERS. Some long-standing ones
BCR Parent resistance.

BUE Experts coming in slowed things down because they insisted on uncompromising standards.

GENERAL COMMENTS FROM FORMER PRINCIPAL
-Interest waxes and wanes and that's acceptable, eg. the wormery laspsed one year. Let's do a few things well (or one at a time)
-There has to be an infrastructure to support the development of the grounds, eg. ensuring the sprinkler system is working, the digging done.
-Seeing the whole environment as part of the school plan. Have to see through the levels of infrastructure and engage good practitioners who can help, eg. A mum who was a fanatical gardener came in daily for three years to support the school garden development. There is a need to have good fallback support for staff and children who cannot do everything, especially heavy and expert work.
 -Professional practice needs to be compatible with the needs of the children's health and safety, eg Pruning has to be done in sympathy with children's safety. (No sharp pieces sticking out at eye level)

FACTORS SUPPORTING

-**FGM** Good Management structure. The Committee of Principal, two teachers and two parents progressively worked to support over many years and was there all the time. It met monthly at first, then quarterly. (This has not survived at Marion with change of leadership). Such a formal structure enables access to the school budget for essential resourcing of ecological projects.
-**FPD** Key people were professionally developed all the time. Eg. Participated in City Council seminars, Green and Healthy Schools, teachers sent to Brisbane to receive the Comalco trophies and able to network with other key teachers. "Nothing succeeds like success".
 -**FTL** Consistent, committed staff.
-**FPS** So many parents were super-committed and it took the load off teachers
-**FTO** Student interest and commitment carried staff along.
-**FMER** Council support was available from the Chief Horticulturalist, who devised a master plan, and advised on thematic plantings. The committee sat down and drew mud maps. (…………….. and a couple of parents).

-The projects were embedded within the culture of the school. (Parents kept coming through all the years of development)
- FMER A permaculture expert helps to write the plan and to choose our plantings.
-Expert advice was important to access when development involves high technology, eg. Recycling, solar panels.
- FMER Teacher resources available eg. Recycling opportunities. "World Recycling Games" . Six teaching units were provided. Design a rubbish bin! VISY Planet Ark, National Tree Day (200 trees) Very attractive to children and highly motivating.

Our School
Who we are

is a culturally diverse Catholic Parish Primary school
educating boys and girls
from Kindergarten to Year Six
in the tradition of Mary MacKillop.

We belong to the   diocesan system of schools.

Our motto - *Everything in Love* - guides all we do.

Our Mission
Why we exist

Staff, families and parish share a commitment to our students by:

➤ **Educating** children in the Catholic faith

➤ **Leading** children to know that they are loved by God

➤ **Inspiring** children to achieve excellence in education

➤ **Respecting** the dignity and uniqueness of each child

➤ **Building** a just, peaceful and harmonious community

➤ **Valuing** the sacredness of all creation

OUR VISION 2004 - 2008

By the end of 2008, School *will be a school where ...*

A.
Catholic Education
Students recognise that Jesus is central to their lives

B.
Teaching and Learning
Effective teaching enables students to actively engage in their own learning

C.
Pastoral Care of Students
Our students are respected and feel safe

D.
Environment
We are one with creation

E.
Partnership with Families
Parents and staff work collaboratively to enhance children's learning

F.
Staff Development
Staff see themselves as learners

G.
Facilities, Resources and Organisation
Facilities, resources and organisation support student safety and learning

We are one with creation

GOALS *To achieve this aspect of the Vision, these Goals will be accomplished by 2008*	2004	2005	2006	2007	2008	Exec Member	Ed Audit
1. Opportunities exist for staff to develop their knowledge and skills regarding environmental issues and practices	4	X	X	X	X	Coord	
2. Opportunities exist to promote parents' understanding of the school's focus on environmental issues and practices		X	X	X	X	Coord	
3. Strategies are identified annually for developing students' knowledge, values and skills as steward's of God's creation		X	X	X	X	REC	
4. A plan exists to develop the playground as a space for students to experience the wonder of creation and to learn about environmental practice	4 4 4 4	X	X		X	Coord	
5. An environmental management plan exists to guide responsible stewardship of resources (water, electricity, paper, waste disposal)			X X			Coord	

Strategies for Implementation of Goals for Annual Plan for 2005

Aspect of the Vision

D   **We are one with creation**

Goal to achieve this Aspect of the Vision

1   **Opportunities exist for staff to develop their knowledge and skills regarding environmental issues and practices**

Timeframe for Implementation of the Goal: T2   Link to other Goals: Coordinating Responsibility: Coordinator 1

What are the learning needs of the child in relation to this Goal?

- To foster a love of the environment
- To build an increased awareness of environment issues

Strategies for Goal Implementation

Strategies for Goal Implementation	Personnel Involved	Date for Completion	Resources Required	Date Completed
1. Build staff knowledge of the importance of recycling through composting.	Committee	T2-4	Bins and information regarding composting	
2. Regular displays of environmental resources that can be integrated within the k.l.a.s .	Committee	T2-4	Resources from library/ internet	
3. Assist staff with activities to guide on them School Nature afternoon sessions.	Paula & Kirsten	T3-4	Environment resources/packs	

Strategies for Implementation of Goals for Annual Plan for

Aspect of the Vision **D** **We are one with creation**

Goal to achieve this Aspect of the Vision **2** **Opportunities exist to promote parents' understanding of the school's focus on environmental issues and practices**

Timeframe for Implementation of the Goal: **T2** Link to other Goals: Coordinating Responsibility: Coordinator

What are the learning needs of the child in relation to this Goal?
- To foster a love of the environment
- To build an increased awareness of environment issues

Strategies for Goal Implementation

Strategies for Goal Implementation	Personnel Involved	Date for Completion	Resources Required	Date Completed
1. Inviting parents to attend a workshop/morning tea to presentations from the environment club on issues explored.	Paula and Kirsten	Term 3		
2. Regular newsletter entries to inform parents about the school based activities.	Environment committee	T2-4		

Strategies for Implementation of Goals for Annual Plan for

2005

Insert Year

Aspect of the Vision   **D**   **We are one with creation**

Goal to achieve this Aspect of the Vision   **3**   **Strategies are identified annually for developing students' knowledge, values and skills as steward's of God's creation**

Timeframe for Implementation of the Goal: T1   Link to other Goals: Coordinating Responsibility: REC

What are the learning needs of the child in relation to this Goal? •

Strategies for Goal Implementation

Strategies for Goal Implementation	Personnel Involved	Date for Completion	Resources Required	Date Completed
1. Project Compassion and other outreach programs throughout the year (eg, St. Vinnie's and Salvo hampers) – teaching children to respect all of Go'd creation especially those who need help and are poor.	Whole School REC to monitor	T1-4		
2. Plan/work with the environmental committee to include an RE perspective to environmental care in the school	RE Committee	T1-2		
3.				

Specific Action for Implementation of Strategy x   **By Whom**   **By When**

Strategies for Implementation of Goals for Annual Plan for 2005

Aspect of the Vision   D   We are one with creation

Goal to achieve this Aspect of the Vision   4   A plan exists to develop the playground as a space for students to experience the wonder of creation and to learn about environmental practice

Timeframe for Implementation of the Goal: T3   Link to other Goals: Coordinating Responsibility: Coordinator 1

What are the learning needs of the child in relation to this Goal?
- To foster a love of the environment
- To build an increased awareness of environment issues

Strategies for Goal Implementation

Strategies for Goal Implementation	Personnel Involved	Date for Completion	Resources Required	Date Completed
1. Provide a range of playground equipment and line markings for activities during playtime.	Paula, Kirsten & Michelle	T2-4		
2. Design and paint wall mural in Undercroft and decorate rubbish bins.	Kate, Paula & Kirsten	T3 or 4		
3. Establish an environment club for years 2-6.	Committee	T2-4		
4. Organise Nature afternoons for whole to experience a range of environmental issues and a variety of stimulating activities.	Committee	T3		
5. Set up a worm farm to be fed and looked after by the Environment club.	Committee	T2-4	Worm farm equipment	
6. Environment club organises a school prayer to inform the school about the environment issues covered within the club and to encourage the chn to	Environment club	T3		

Appendix D. *St Mary's Plan for Cultural Harmony 2004*

PLAN FOR
CULTURAL HARMONY 2004

CURRICULUM	AREAS FOR ACTION	TERM
	• Through Literacy Advantage project and Staff Development Day, develop whole school focus on Reading with particular attention to the needs of the ESL learner	1-4
	• Kindergarten Transition Program	1
	• Rocks and water program – Boys Education	1
	• Staff Development on Boys Education CEO Position Paper	1
	• Brainstorm with staff - global and aboriginal/Asian perspective and integrate these into HSIE	1-4
	• investigate Resource acquisition for all cultural diversity/ global perspective's	1-4
	• Through planning and implementation of Harmony Day Conferences	1-4
	• Harmony Day T2 focus on Vietnamese culture - guest speakers	2
	• Harmony Day T3 Social Justice Day 21/9	3
	• Harmony Day T4 October Peace garden Development	3
	• Teachers to plan for and implement a range of cultural harmony activities ie Racism Conference	1-4
	• Clean Up Australia visit fro Waste Watchers – program, lessons and speakers	1
	• NAIDOC Week 4/7-9/7 - Educational activities	2
	• Contiki Visit – 30/7 American Students visit St	3
	• Through Creative and practical Arts St Mel's to participate in the Korean Art Festival	3
	• Education around Mary Mackillop - teachers critical reflection	3
	• Teaching and Learning in Gifted and Talented and Technology with a focus On the "International Year of Rice 2004"	3
		1
STAFF DEVELOPMENT	• Literacy Advantage: Reading / Word development and the ESL learner	1-4
	• Development of Special Education Policy	1
	• Racism education – student workshops	1-4
	• Harmony Day – Staff development 15/3, 5/7	1/3
	• Co-operative learning: All staff – International Conference 23/4 and 24/4	1/2
		1-4
	• Parent Participation – Ctees structure, workshops in reading, parent helpers. Technology, homework, ESL Religious Edn etc	1-4
	• Contextualising learning activities re student background	2
	• Bullying education	3
	• Peace garden	1-4
	• Use of inclusive language	1-4
	• New teacher Induction Program	1-4
	• Critical reflection for staff	1-4
	• Gifted and talent – Differentiating the Curriculum	2-4
	• Kindergarten Transition Program	1
	• Supervision Model with a focus on the individual needs of the learner	1-4

Appendix I. *Our Dream, Our Future, Our School*

Our Dream Our Future Our School

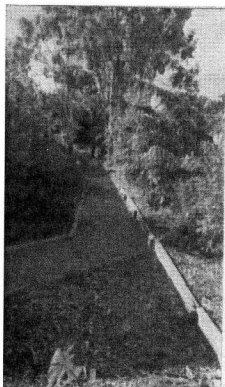From Little Things Big Things Grow

As Newman School (pseudonym) has grown and developed, there have been many positive changes to the outdoor environment and gardens.

Looking back at what the School was like before, makes us very proud of our achievements and our desire to continue to create effective and useable working environments outside the classrooms.

With the need for more classrooms, also came the need for more gardens.

And so the gardens were begun

With regular planting, pruning and weeding from the children, parents and staff, the gardens continue to thrive, despite the drought
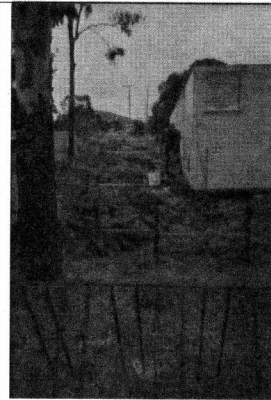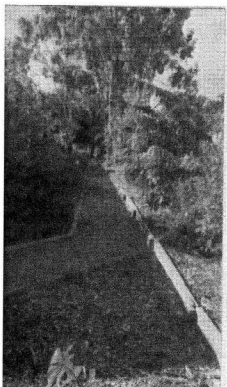
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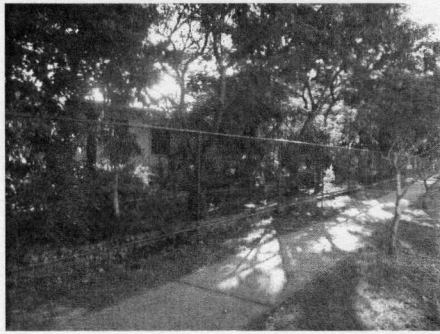

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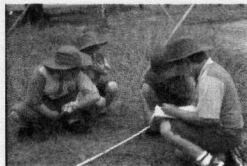
Just look at us now!

The Gardens are still looking great in 2004

The Green Guardians helped with the measuring of the area.

Everyone pitched in and helped with the digging

Our Torres Strait and Aboriginal families will take a big role in the caring of our new garden.

The Cultural Food Garden has continued to thrive with products being used by our school and families during NAIDOC week.

ENVIRONMENTAL EDUCATION

POLICY AND PRACTICE

Ro...

January 1995

The Greening of

"We care for our world."

POLICY:

God fashioned a web of creation entrusting its conservation and development to us.

Our task is to respect, nurture and appreciate it.

MISSION STATEMENT:

At Marian School we strive to foster the care of people and care of the environment.

We aim for a conversion of heart through better knowledge skills and attitudinal development.

We Care for It Wald Cul ...
...

CHARACTERISTICS OF THE PROGRAMME:

Environment Education is integral to all aspects of life at Marian

A whole-school approach will be taken.

It will involve community action programmes and Environment Encounters.

Aims and Objectives:

Aims

The three aims of environment education for students at   are:

TO LEARN ABOUT THE ENVIRONMENT

To achieve this aim students will have the opportunity to acquire knowledge and understanding of:

- Christian environmental concepts

- local and global environments

- past and future environments

TO DEVELOP SKILLS IN INVESTIGATING THE ENVIRONMENT

To achieve this aim students will have the opportunity to:

- identify, clarify and analyse alternate views on environment issues and evaluate possible resolutions to them.

TO ACQUIRE A CONCERN FOR THE ENVIRONMENT

To achieve this aim students will have the opportunity to:

- develop positive values and attitudes towards the environment

- express sensitivity towards the environment

- hold an Australian perspective towards our unique environment which recognises the responsibility of all Australians towards conservation

- respect all of creation as a sacred trust.

Objectives

The following list of objectives for environmental education, K-12 is organised to correspond to the three general aims of environmental education. The following points will help teachers to implement these:

- The list of objectives is arranged in sequence from those which are more simple to those which are more complex.

-4-

Aim: acquiring a concern for the environment
Feelings. values and attitudes objectives

Students have the opportunity to develop:

F1   a humility and wonder of creation, an appreciation for the gift of creation, a joy
       within creation and a hope for creation

F2   concern for the quality of environments

F3   an appreciation of their attitudes towards their environment

F4   responsibility in their behaviour towards their environment

F5   enthusiasm for investigating aspects of environments
       respect for the rights, needs and opinions of others
       an appreciation for the need for local, national and international co-operation in
       preventing and resolving environment problems

F6   an appreciation of the unique character of the Australian environment

F7   an appreciation of the contribution of other cultures to past and present
       environments

F8   an appreciation of Aboriginal +Island cultural knowledge and experience of the
       environment and that culture's contribution to a unique understanding of the
       Australian environment.

Aim: learning about the environment
Knowledge/understanding objectives

Students have the opportunity to:

K1   learn of God's presence in creation

K2   understand the term environment as a concept

K3   understand related terms and concepts

K4   understand the part their senses play in their relationship with the environment

K5   understand Christian stewardship

K6   identify the natural, social/cultural, built and spatial components of an environment

K7   recognise that there is a variety of environments at local and global levels

K8   recognise and understand interrelationships within and between environments

K9   recognise that there are a variety of past, present and future environments

K10   understand that the environment has various meanings for different cultural groups

K11   recognise the value of the experience, skills and abilities of indigenous people in relation to the environment

K12   understand the positive impact that traditional Aboriginal knowledge about land and resource management is having on present-day environment awareness and rehabilitation programs

K13   understand that the world's resources are meant for all people

K14   understand that resources are used to satisfy specific needs and wants and that wants are subjective