# Sustainability - the evolution of a contemporary myth

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**Abstract**

*An overview of the evolution of sustainable development over the course of the twentieth century is given, and key stages in its development, in terms of its environmental and social facets, are identified. From this historical perspective, it is argued that sustainable development bears many of the hallmarks of myth and religion, but is couched in vocabulary that is palatable to an advanced, science-based, secularised society.  However, as many are now rejecting literal interpretations of traditional sacred texts, should we be prepared to do the same for the narrative of sustainability? If the question to ask of the traditional myths is not 'Are they true?' but 'What do they mean?' then perhaps we should ask the same question of the contemporary 'myths' of sustainability and sustainable product design.*

## INTRODUCTION

If we are to understand the meaning of sustainable development and why it has evolved to become a generally acknowledged 'good' in late 20th/early 21st century life (by governments, business, and society as a whole), then we must attempt to see it in its historical context, and understand why it has forged a place in our thinking at this particular time. Here, an overview will be presented of some of the most significant events of the past century that ultimately led to our current ideas of 'sustainable development' and, what might be seen as a subset of these developments, 'sustainable product design'. A way of understanding these ideas within a broader context of human endeavour will be discussed and, in particular, the notion that 'sustainable development' can be understood as a contemporary, but rather limited, mythic story that attempts to address and give meaning to some of our principal modern-day uncertainties.

### A CONTEMPORARY MYTH FOR A SECULAR SOCIETY?

The publication of Our Common Future in 1987 from the World Commission on Environment and Development (WCED), often referred to as the Brundtland Report, popularised the term 'sustainable development', which it described as a type of development that would enable us to meet our present needs in ways that would not jeopardise the potential of future generations to meet their needs (WCED, 1987, p.43). Since then, there have arisen hundreds of *'principles of sustainable development',* designed to suit all sorts of industries, interests and views[1]. However, in general terms sustainable development addresses three interrelated areas of concern: environmental stewardship; social equity and justice; and economic issues.

In many respects, it could be argued that the statement of these three principal concerns is our contemporary, secularised way of repeating age-old wisdom teachings that have been expressed down the centuries in the form of mythology and sacred literature. There have always been, and will always be myths because it is through the metaphorical language of myth that a culture articulates its deepest concerns. Sustainable development can be seen as our modern myth, emerging from a culture of science, technology and reason.

We live in an age where it is often regarded as inappropriate to include religious considerations in the discussion of contemporary issues. Politicians tend to avoid reference to religious concerns, they are almost never addressed

in the business or commercial world, academics rarely include any discussion of the religious issues that might be raised by a particular topic of debate and, increasingly, religious symbols are being viewed as unacceptable in many public school systems in Western democracies (Bunting, 2003; Associated Press, 2004; Paterson, 2004). However, while the demise of religious considerations in public debate is clearly evident, many of the concerns that religion traditionally addresses remain. George Steiner once said that, in Western society,

> *"the decay of a comprehensive Christian doctrine had left in disorder, or had left blank, essential perceptions of social justice, of the meaning of human history, of the relations between mind and body, and of the place of knowledge in our moral conduct."* (Steiner, 1974, 2)

Given this state of affairs, we can begin to see 'sustainable development' as a socially acceptable, contemporary means of framing our enduring concerns about ethical dilemmas, moral choices, social justice and environmental stewardship. Indeed, the historian Philip Jenkins has asked, *'Might the new ideological force be environmentalism, perhaps with a mystical New Age twist?'* (Jenkins, 2002, p.11); he quotes the political scientist Hedley Bull who has suggested that such a movement could be *'"a modern and secular equivalent of the kind of universal political organization that existed in Western Christendom in the Middle Ages."'* (quoted in Jenkins, p.11)

The foundation of 'sustainability', however, is less rounded, less developed, and has a far more instrumental bias and utilitarian agenda than the heritage of wisdom teachings that are present in the world's great philosophies, religions and mythologies. In the latter we find the emphasis on the inner or spiritual development of the person – from which one's behaviour and actions in the world can be guided. It could be argued that, without this inner source, our 'worldly' endeavours tend to become more superficial and, potentially, increasingly misguided.

Like many previous myths and religious traditions[2], sustainable development aspires to an undefinable, unattainable goal – a goal which, nevertheless, many see as worth aiming for and working towards, but which forever eludes actual 'arrival'. Furthermore, the sustainability 'myth' tells us that if the message goes unheeded, and if we fail to alter our behaviour, then we will be the cause of our own destruction. The 'message' is both ethical and environmental. It promotes greater social equity and improvement in the living conditions for those in need, especially those in developing countries, and it also encourages conservation of the natural environment; and reductions in energy use, consumption and human greed. For example, Gordon and Suzuki, in their 1990 book *It's a Matter of Survival* include tips and suggestions for saving energy in homes, and outline areas where larger scale energy savings can be made. They also write, *'The simple truth is that we are the last generation on Earth that can save the planet.'* (Gordon and Suzuki, 1990, p.3) This statement is an assumption and a warning, but it is not a proven fact – and it is anything but a 'simple truth'. Rather, it should be viewed as a well-intentioned message to spur us into changing course. There are many other examples of writers who illustrate possibilities for moderating our impacts on the planet (e.g. Sachs, Loske and Linz, 1998; Hawken, 1993; Hawken, Lovins and Hunter Lovins, 1999), and others that warn of the imminent dangers to our future because of our destructive lifestyles (e.g. Meadows, Meadows and Randers, 1992; Hunter, 2002). In this context, sustainable development is seen as a way out of our predicament; a way forward that will enable us to live in closer harmony with the natural environment and achieve greater social equity and justice in our activities. This view of sustainable development, as something that encompasses all the essential elements required to achieve our goals is, as we shall see, characteristic of a mythic story.

Another related aspect of sustainable development is its implicit sense of loss; a loss of a perfect state, a loss of innocence and a loss of harmony with nature and community. There is also the suggestion that, through right effort and right judgement, we can regain this lost state of perfection. This is a repetitive theme throughout human history, and in mythology and religion. As Holloway has pointed out, referring to the poet Borges, *'all our paradises are lost paradises, places of contentment we destroyed by our own folly and greed.'* (Holloway,

2002, p.88) In the Greek Myths we are told that Pandora's curiosity led her to open the box that released suffering and disease into an ideal world (Bulfinch, 1855, 16) and, in the Bible, Adam and Eve are expelled from the paradise of Eden (Genesis, 3, 22-24), to which we are forever trying to return. Similarly, we point to our own recklessness and indulgence in destroying habitats, air quality, water quality and the ozone layer and are now striving to regain a lost ideal through something we have termed 'sustainable development'.

The possibility that sustainable development may not actually be achievable in any practical sense does not, however, make it any less important. We have always created and will continue to create myths that allow us to understand our world and our place in it. The point of the stories in the Greek Myths, the Bible or the Bhagavad Gita is not so much about achieving an 'end state' as about taking on the task of learning how to live in the world. Sustainable development can be seen as our contemporary, secularised version of the same idea. Caring for and respecting the natural environment, together with ideas of socio-economic security and social justice are notions that have been with us for a very long time. However, their importance and mutual interdependence have only been reconfigured into an acceptable language for contemporary, developed, secularised societies relatively recently.

## THE MODERN AGE - and the seeds of sustainable development

Economics, commerce, and the business requirement for profit go back to time immemorial, but in Christian cultures profit and business have often been viewed with ambivalence. (I mention Christian cultures in particular because Christianity is the religion that has most strongly influenced the development of western industrialised societies). There are numerous passages in the New Testament that cast riches and wealth in a poor light[3], and, whether taken literally or in terms of metaphor and symbolism, these stories have undoubtedly contributed to Western society's love/hate view of economic necessity. Ironically, it was the accumulation of vast wealth within the Church, and the associated corruption, scandal, and exploitation of the common people, that contributed to the Reformation during the first half of the 16th century (Chadwick, 1964, pp.12-19). The advancement of science, technology and industry from this time eventually led to the Enlightenment and the Industrial Revolution of the 18th century. As trade and commerce increased and expanded, the Church that had once been unified by Rome became fractured and fragmented. Protestantism, which rejected allegiance to Rome, grew through the establishment in the 16th century of Lutheranism in Germany, Calvinism in the Low Countries and Anglicanism in Britain, amongst others. Numerous Protestant groups arose in the years that followed[4]. These developments can be seen as attempts to reform religious practices and to reconcile religion with the rationalism of the emerging scientific and industrial age (Kung, 2001, p.157). They occurred in a period of:

- rapid scientific discovery, innovation and understanding;
- increasing applications of science in the development of technology
- expanding use of technology in creating commercial potential at a time of massive urbanization in Europe and colonial expansion abroad.

The scientific revolution and the Age of Reason are not only related to the fragmentation of the Church, but also to a diminishment in its influence and power. Western societies, especially those of northen Europe, became increasingly secularised (Kung, pp.148, 156), a process that some say is still occurring[5]. Naturally, with this secularisation the traditional teachings of the Church became less well known and less influential – and this decline has continued up to the present day. Thus, the changes that took place during the Reformation and in the years that followed resulted in a more individualistic, rational, secular and a far more urbanized society (Hill, 1992, pp.41, 116). These changes in Western society established the basis of the Modern age and their effects are still with us.

However, by the second half of the 20th century, after two or three hundred years of scientific, industrial and commercial developments and expansion, and with two world wars, the horrors of the Holocaust and the atomic

bombings of Japan still in the recent past, there arose a need for new ways of interpreting and understanding the world and humankind's place within it. The older understandings no longer seemed valid or capable of dealing with questions arising from the existential angst caused by the threat of nuclear destruction, the increasingly obvious environmental damage from industrial activities, and the pluralism of multicultural societies and an increasingly mobile global population. Not only had the traditional religions by this time lost much of their relevancy, but also, the worldview that had evolved since the Reformation, the so-called 'Modern Age', was now *also* being challenged. During the second half of the 20th century many new understandings developed and an era that has been termed the ***Postmodern*** emerged, to distinguish these new and evolving understandings from the previous ***Modern*** age (which can be roughly positioned as spanning the 17th to the mid-20th centuries).

## THE BEGINNINGS OF CHANGE – environmental and social

There were many early indications that people were concerned with the environmental and socio-economic consequences of the ***Modern*** age. Thoreau's ***Walden***, published in1854, was highly critical of the expanding technologies of the time (Thoreau, 1854). The latter part of the 19th century saw the establishment of the world's first National Park[6] and the formation of the Sierra Club[7] – both in the United States and both aimed at conserving natural places and wildlife. In terms of social issues, the late 19th century and first half of the 20th century witnessed the introduction of the first social security and health insurance acts and saw some initial activities in changing the prevailing attitudes concerning the rights of women and of homosexuals[8]. However, it wasn't until the second half of the 20th century that many of the environmental and social concerns began to be accepted on a larger scale, which in turn led to significant reform.

## THE 1960's - fear, protest and attitudinal change

The 1960's were a time of unrest, fear, and uncertainty, especially among the younger generations of the Western countries. The danger of nuclear war triggered peace campaigns in Europe and the U.S. throughout the late 1950's, 1960's and 1970's. These extensive protests challenged the position of the establishment and the traditional, conservative bastions of power because it was perceived by many that the very future of the planet was at stake. These fears were not unfounded – in 1963 the world came to the brink of nuclear disaster with the Cuban missile crisis. This pervading threat to the future was evident through books and art of the time. Nevil Shute's novel 'On the Beach', published in 1957 was the story of a world laid waste by atomic war (Shute, 1957), and in the 1960's works by Pop artists such as James Rosenquist and Larry Rivers contained numerous references to death, war and destruction[9].

These growing concerns about the actions of human beings and the threat to the future were spurred by the publication in 1962 of Rachel Carson's Silent Spring (Carson, 1962), which raised public awareness of the environmental costs of widespread pesticide use. This book is often linked to the start of the environmental movement.

The energy crisis of the early 1970's, caused when the OPEC countries placed an embargo on oil exports, raised awareness about energy use and led to developments in energy conservation and the consideration of alternative energy sources, such as wind power. The oil crisis put at least a temporary halt to the production of the very large 'gas-guzzler' cars in the U.S.A., which were replaced by smaller, more modest automobiles that consumed less fuel. (However, since the early 1990's the imminent end of oil reserves has been perceived with less urgency and, despite indications of global warming, the 'gas guzzler' has returned in the form of the highly popular Sports Utility Vehicle (SUV).)

Evidence of increasing environmental destruction and air pollution, and concerns about energy resources resulted in the emergence and expansion of the Green movement in the late 1960's and early 1970's. The Club of Rome was formed in 1968 [10], the U.S. Environmental Protection Agency in 1970 [11]. Friends of the Earth [12] in Europe

and Greenpeace [13] in Canada were both founded in 1971, and the following year a United Nations conference in Stockholm led to the establishment of the UN Environmental Program (UNEP)[14].

Alongside these developments that focussed on the environment, there were significant advances in social issues and human rights, areas that would eventually become embraced by the term 'sustainable development'[15].  The Civil Rights movement in the United States, campaigning for the rights of black Americans, was at its peak at this time. Martin Luther King delivered his *'I have a dream'* speech at a civil rights march in Washington DC in 1963. During the mid-sixties race riots broke out in major cities all over America and in 1969 the US Supreme Court introduced desegregation. Women's emancipation was also on the rise at this time. In 1960, the contraceptive pill was approved in the U.S. [16], starting the sexual revolution and influencing the progress of the feminist movement. In 1970, the highly influential book *The Female Eunuch* by Germaine Greer was published, which challenged the subservience of women in a male-dominated society (Greer, 1970), and in 1973 a woman's right to have an abortion was approved in the U.S.[17] This period also saw the beginning of the Gay Rights movement, which has been attributed to a riot that broke out at the Stonewall Inn in New York City in 1969 in response to a police raid[18]; the subsequent decade saw the establishment of numerous homosexual rights organizations.

Therefore, during these years we see a multitude of changes and events occurring throughout the Western world that, in a broad sense, responded to a) increased environmental awareness and recognition of the fragility of the planet, and b) social inequities and human rights. In 1972 a photograph of the Earth from space[19], taken by the astronauts of Apollo 17 mission on December 7th 1972, reinforced the finite nature of the earth and its vulnerability. When these many and diverse events are viewed as a whole, we see that the foundations of sustainable development were laid in the 1960's and the early years of the 1970's.

## THE PRODUCT DESIGNER

The publication in 1971 of Papanek's *'Design for the Real World – Human Ecology and Social Change'* (Papanek, 1971) was highly influential in bringing the mood of the times to the attention, and within the scope, of the product designer. Papanek's lambasting of conventional product design and his call to address real needs rather than created wants resonated with many young designers at the time. In 1973, E. F. Schumacher's '*Small is Beautiful – Economics as if People Mattered*' (Schumacher, 1973) began to show the relationships among economic enterprise, poverty – especially poverty in developing countries, energy use, and environmental repercussions. Schumacher's views on the introduction of appropriate technology in developing countries to allow greater self-reliance paralleled many of the sentiments of Papanek, and began to be implemented through the establishment of the Intermediate Technology Development Group in the UK[20]. Buckminster Fuller, who had been developing his ideas for the effective use of technology since the 1930's came to renewed prominence in the early 1970's. Fuller believed it was possible to combat famine and poverty through the thoughtful and responsible use of science and technology - through an approach he termed "Comprehensive Anticipatory Design Science" (Buckminster Fuller Institute, 2004). He was one of the earliest proponents of renewable energy sources, and his ideas were influential on the younger generation in the late 1960's and early 1970's (Rybczynski, 1980, 100). The work of Papanek, Schumacher and Fuller, amongst others, responded to the environmental and social reforms of the 1960's and presented a persuasive alternative for the product designer. This alternative path was well-intentioned and certainly idealistic, but it was none the worse for that. As another way forward, a way that would attempt to circumvent the shortcomings of industrial capitalism, it was perhaps inevitably and appropriately embryonic and optimistic.

## THE ESTABLISHMENT AND INSTITUTIONAL CHANGE

The fears of nuclear obliteration and environmental destruction, and discontent with social inequalities were manifested during the late 1950's, the 1960's and the early 1970's largely in the form of protests and

demonstrations, and through the formation of special interest groups. From the late 1970's on, many of these concerns started to become integrated into the 'establishment' in the form of legislation, agreements and representation. In 1983 the Green Party entered the West German Parliament with 27 seats[21]. In 1987 the Montreal Protocol to limit the production of ozone depleting substances was adopted[22]. In 1989 the Dutch introduced its first, and at the time the world's most comprehensive, National Environment Policy[23], and in 1992 the first UN Conference on Environment and Development, known as the Earth Summit, was held in Rio de Janeiro[24]. During these years, further evidence of major environmental concerns and social inequities were raised to public consciousness. Indications of significant ozone layer depletion over the Polar regions, and of global warming trends were revealed by scientists[25]. In the early 1980's reports of the debt crisis faced by many developing countries was followed by pictures in the press of mass starvation in Africa, especially in Ethiopia (Grimwood, 1986, p.186). The gross inequities between the rich countries and the poor countries were raised to new levels of public awareness through the Live Aid Concerts organised by Bob Geldof (Grimwood, p.190), and, during the mid-1990's there were numerous reports in the western press of the use of sweatshop labour by firms in developing countries that were supplying goods to US companies for consumption in the west (Marlow, 1995; Sylvester, 1996; Lloyd-Roberts, 1996).

Environmental degradation and increased awareness of the gross inequities between rich and poor countries have, in recent years, spurred more protests and riots around the world. The targets of these protests have been the major corporations, and political leaders who make agreements that, according to the protesters, exacerbate social inequities and environmental harm. Demonstrations and violence were seen at the World Trade Organization Meeting in Seattle in 1999, and again at the G8 Summit of world leaders in Genoa, Italy in 2001. Fortunately, violence was avoided during demonstrations at the G8 Summit in Kananaskis, Canada in 2002. In early 2003 the world saw the reappearance of the peace march with the largest international displays of protest since the 1960's – these marches were organised to demonstrate against the American led war in Iraq. And in Cancun, Mexico in September 2003, World Trade Organization talks collapsed amid further protests and serious differences between rich and poor countries – especially with respect to government subsidies given to farmers in the richer economies which, it is alleged, render produce from developing countries less competitive (BBC, 2003).

These diverse events, changes and reforms constitute a significant shift in attitudes, understandings, expectations and behaviours. The Modern worldview has, to a great extent, become replaced by a Post-modern worldview, where absolute certainties have been replaced by more relativistic, and in many cases, more tolerant attitudes. Environmental responsibility, social equity and human rights have become established in our legislations and in our thoughts and actions. The notion of achieving more sustainable ways of living is held up by political and business sector leaders as something worth striving towards – even if there is little understanding of what a sustainable society might actually look like and even less understanding of how we might get there from our current state of high energy use, resource depletion and consumption.

## SUSTAINABLE PRODUCT DESIGN

In terms of what all this means to the designer, there are numerous ways these changing understandings have been impacting the product design and manufacturing sectors. A variety of legislations in many countries now control air emissions, water pollution and the dumping of toxic substances. International voluntary programs such as ISO 14000[26] lay down best practice guidelines for environmental responsibility, programs such as The Natural Step[27] have been taken up by a number of major corporations, and tools such as Life Cycle Assessment software[28] have been developed to aid companies in designing products that have lower environmental impacts. However, there have also been developments that run counter to understandings of sustainable development. Labour exploitation in developing countries is still widespread, and is often associated with major western corporations. The production of very large automobiles with high fuel consumption has returned, especially in the

United States[29]. And there is massive dependence on road transport in general, rather than on more energy efficient and more environmentally benign methods of transportation such as rail. The links that must be formed between local scale initiatives and mass-production, in order to further both environmental responsibilities and social equities and self-reliance have received relatively little attention, and the rates of production, consumption and waste production in the Western nations continue apace.

## THE SUSTAINABILITY MYTH

The vision of a sustainable society especially when the population of the world exceeds six billion is, it seems, much more an ideal than a feasible possibility. In this sense, and in a variety of other ways, sustainable development bears all the hallmarks of a mythic story – a story that tries to come to terms with, and provide resolution to, something that is beyond our grasp. Steiner has explained the criteria for attributing to a body of thought the status of a 'mythology'. Firstly, it must provide an idea of completeness – a total picture of humanity in the world. Secondly it must have a recognisable beginning and development, including key founders, texts and so on. And thirdly, it will develop its own stories, language and scenarios (Steiner, 1974, 2-4).

In sustainable development we have clear evidence of all three criteria. It contains many of the moral and ethical elements that are present in the traditional myths and religions, but re-presented in a contemporary and highly secularised form. Furthermore, the three key elements of environment, ethics and economics cover our physical environment, our moral sense and our social well-being.

From the foregoing it is also clear that, while the seeds of sustainability may have been sown earlier, it began in earnest during the 1960's and early 1970's through the protest movement, through social changes such as environmentalism and feminism, and through the writings of key people such as Carson and Schumacher, and in product design, Papanek. These ideas became cemented during the 1970's and 1980's and the term sustainable development was popularised through the publication of the so called Brundtland report in 1987.

We also have the evangelists and prophets who proclaim the new vision and who warn of dire consequences if we do not heed their words and change our ways. The sandwich board apocalyptic that once roamed our city streets proclaiming, *'The end of the world is nigh'* has been replaced by often sensationalist newspaper columnists who base their assertions on the authority of science. In addition, there are a plethora of books now available that assert the dangers of continuing on our current course, that document environmental disasters, warn of the dangers to health of air pollution, or speak out against the policies of major corporations. Some of these arguments are well founded, while others are more sensational but frequently more tenuous in their assertions. Nevertheless, the body of work that has arisen over recent years to address and begin implementing the ideas contained under the 'sustainable development' umbrella constitute a rich and diverse set of ideas. Moreover, terms such as 'the Natural Step' and 'Factor 10', together with the three E's of sustainability, 'product/service systems'  and 'back casting and scenario development' are all familiar to those working in the field.

Hence, 'sustainable development' does offer an idea of completeness – a total vision. It also has a recognisable beginning, identifiable founders, and is spawning a burgeoning collection of narratives, terminologies and scenarios. It can therefore be confidently viewed as a contemporary myth.

These observations do not negate the value and importance of sustainable development, they simply allow us to see it from a somewhat different, perhaps more philosophical, perspective. While sustainability may not actually be physically achievable, its very presence in our consciousness indicates a discontent with the current state of things and a need to strive towards something we believe to be better – for the environment, for people and for ourselves. As Holloway has put it,

*'Throughout history there have been many of these eschatologies of human equality; the fact that they never entirely succeed nor entirely fail is the main point. They act as a stimulus to the work that is always to be done of bringing out of the chaos of desire and greed some order of mercy and justice.'* (Holloway, p.197)

## SUSTAINABLE DEVELOPMENT – is it enough to sustain us?

We have seen in this discussion that sustainable development encapsulates and represents particular aspects of traditional teachings; it consists of several broad, interconnected themes that address some of the major pragmatic challenges of our time. However, it is often considered as a kind of 'cure-all' for today's environmental and social problems – and not as merely an element within a much larger narrative of meaning and significance. But without some greater aspiration or vision of human existence it is hardly enough to inspire us, let alone, sustain us.  Sustainable development yields only a partial and, ultimately, a rather meagre picture of the human condition. It may address some of the important practical issues of environmental stewardship, social justice and economic security, but it is often stultifyingly prosaic. It is largely bereft of ideas that nurture and develop the inner person - the inspirational, the imaginative, the transcendent and the struggle for self-knowledge. These are aspects of our existence that fuel the artist, the composer, the musician and the poet.  We have a long heritage of mythical, spiritual, philosophical and artistic traditions that can provide us with a foundation on which to base our current endeavours and to address our environmental and social responsibilities. Sustainable development must embrace this heritage, and these aspects of human culture if it is to making a meaningful and lasting contribution.

In an age that gives short shrift to religion and the traditional mythical views of the world, it is sobering to realise that we have, in effect, created our own myth for our own time and in language that we can accept. But, as many are now rejecting literal interpretations of traditional sacred texts, we must be prepared to do the same for our own. If the question to ask of the traditional myths is not 'Are they true?' but 'What do they mean?' then we must ask the same question of the evolving myths of sustainable development and sustainable product design. We must not ask, 'Are they possible to achieve?' but, 'What does the creation of these new narratives mean for us in contemporary society and for us personally in our work and our lives?' By asking such a question we can begin to see sustainable development from a somewhat different perspective. On the one hand, it represents much more than simply an analytical approach to environmental auditing or improving business accountability. It also encompasses and represents a way of acknowledging our values and beliefs, and ascribing meaning to our activities. In this sense, sustainable development offers a contemporary way of, at least partially, filling the void left by the demise of religion in public discourse. On the other hand, it must also be acknowledged that sustainable development is both ideological and immature. As such, it has neither the breadth nor the profundity of the traditions that, to an extent, it supersedes. It would seem, therefore, that our contemporary myth of sustainability will be insufficient to sustain us.

**FOOTNOTES**

1. A wide variety of principles, frameworks and guidelines for sustainable development in diverse areas can be found at *http://www.sdgateway.net/*

2. see Bierlein (1994) - Bierlein describes myths of 'the Fall' from the Talmudic and Biblical traditions and myths of 'apocalypse' from India, Persia, the Norse myths, North American myths, as well as the Old and New Testaments of the Bible.

*3.* References to riches, wealth and possessions in the New Testament include: *Mark 10: 21-22*; *Matthew 19:24*; *Luke 8:13-15*; *Luke16: 19-25.*

4. Examples include: the Mennonites and Amish (1500's); the Quakers and Baptists (1600's); the Shakers and Methodists (1700's); and Christian Scientists (late 1800's).

*5.* For example: 'The Soul of Britain' by Gordon Heald, published in the *The Tablet*, UK, June 3rd 2000, describes a survey conducted by The Tablet and the BBC that reveals a drastic decline in traditional religious beliefs in Britain over recent years. However, while traditional religion may be in decline there is an increase in people who describe themselves as 'spiritual', rather than religious. In Canada, while only 21% of people regularly attend a religious service, 85% identify with a religios denomination (*Globe and Mail, Canada, December 28th 2002, p.F3*) The research of Canadian academic Reginald Bibby also shows that while Church attendance has drastically declined, there is still a strong identifcation with the traditional religions (see Bibby, 2002). Thus, while there has been significant secularization of the public realm, this does not neccesarily mean that people are no longer religious or concerned with the 'spiritual'. Indeed, the Tablet/BBC survey indicates that relatively few people describe themselves as atheists (8%).

6. Yellowstone National Park, USA was established in 1872 and was the first national park in the world – see http://www.nps.gov/yell/

7. The Sierra Club founded 1892 by John Muir and associates – see http://www.sierraclub.org/history/timeline.asp

8. In 1883, Germany established the first compulsory national insurance program, starting with a health insurance program. Britain introduced unemployment insurance in 1908. The Scientific-Humanitarian Committee, established in Germany in 1897, campaigned for the rights of homosexuals. In 1893 New Zealand became the first country to grant women the right to vote. Source: *Encyclopaedia Britannica 2001 Deluxe Edition CD-ROM* - Timelines

9. James Rosenquist's 'Campaign' 1965, and Larry Rivers' 'Cigar Box', 1967; see Weitman, (1999) pp.58 & 75.

10. A brief history of the *Club of Rome* is at: *http://www3.sympatico.ca/drrennie/CACORhis.html#ClubofRome*

11. Homepage of the *Environmental Protection Agency* in the United States is: *http://www.epa.gov/*

12. A history of *Friends of the Earth* is available at: *http://www.foei.org/about/history.html*

13. A history of *Greenpeace* is available at: *http://www.greenpeace.org/history/*

14. *UN Environmental Program* homepage: *http://www.unep.org/*

15. *Sustainable Development Timeline : http://www.sdgateway.net/introsd/timeline.htm*

16. *Encyclopaedia Britannica 2001 Deluxe Edition CD-ROM* - Timeline 1960

17. *Britannica 2001*- Timeline 1973

18. *1969 Stonewall gay rights uprising remembered*, CNN News Report, June 22nd 1999, at: http://www.cnn.com/US/9906/22/stonewall/ commemorates the riot at the Stonewall Inn, New York in June 1969 where gays protested against police discrimination and harassment.

19. The photo of Earth from Apollo 17, taken on December 7th 1972, can be viewed at: *http://nssdc.gsfc.nasa.gov/photo_gallery/photogallery-earth.html*

20. Intermediate Technology Development Group homepage : *http://www.itdg.org/*

21. Britannica 2001 – Timeline 1983.

22. Montreal Protocol, 1987 – see Sustainable Development Timeline – International Meetings and Agreements 1987, SD Gateway at: *http://www.sdgateway.net/introsd/timeline.htm*

23. Britannica 2001 – Timeline 1989.

24. Earth Summit homepage: *http://www.un.org/geninfo/bp/enviro.html*

25. For example: Britannica 2001 – Timeline 1985 (sharp season reduction in ozone layer revealed); 1986 (international moratorium on whaling); 1988 (deforestation rates in the Amazon cause international outcry).
26. ISO 14000: *http://www.iso14000.com/*
27. The Natural Step: *http://www.naturalstep.org/*
28. Life Cycle Assessment Software: *http://www.pre.nl/*
29. see Globe & Mail, Canada, January 6th 2003, Section B *"Auto show shines amid the gloom"*, B1 and *"Japanese car firms focus on the U.S."* B1 and *"SUV's nab spotlight at auto show"*, B9

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Sustainable by Design offers a compelling and innovative, design-centred approach that explores both the meaning and practice of sustainable design. Walker explores the design process in the context of sustainability, and challenges conventional ways of defining, designing and producing functional objects. He discusses the personal design process, tacit knowledge, ephemeral design, experimental design, and the relationship between intellectual design criteria, physical expression and aesthetic experience. This book will introduce vital concepts to students and will inspire designers by providi Sustainable engineering is a conceptual and practical challenge to all engineering disciplines. Although the profession has experience with environmental dimensions of engineering activities that in...Â Walker S (2007) Sustainabilityâ€"the evolution of a contemporary myth. Proceedings of the 5th European Academy of Design conference, Barcelona, Spain, retrieved 11 Jan 2007, from www.ub.es/5ead/PDF/5%20/walker.pdf. WECD (World Commission on Environment, Development, the â€œBrundtland Commissionâ€) (1987) Our common future. Oxford University Press, OxfordGoogle Scholar.