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Connection between Spirituality and Sustainable Development

Hypothesis: Sustainable development must incorporate a spiritual basis.

Submitted by

Nidhi Jain

A MASTER'S DEGREE PROJECT SUBMITTED TO THE FACULTY OF ENVIRONMENTAL DESIGN
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ENVIRONMENTAL DESIGN.

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Connection between spirituality and sustainable development

A Hypothesis: Sustainable development must incorporate a spiritual basis.

By Nidhi Jain (Environmental Design Programme)

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Abstract

This Master Degree Project (MDP) explores the connection between spirituality and sustainability. It intends to show how recognition of spiritual values as an integral part of sustainable development can lead to a sustainable future. The following areas were explored through literature review and illustrative examples to establish a connection between spirituality and sustainability:

1. The psychological, economical and political trends of modern society that conflict with sustainable principles;
2. Spiritual beliefs and values that can provide a basis to resolve those conflicts;
3. The various aspects of the built-environment that are important to consider in design process in order to establish a healthy relationship between humans and nature;
4. Ancient building methods: Feng-shui (Chinese traditional basis for building) and Vaastu Shastra (a traditional building method of India) that find their basis in spiritual beliefs.

This exploration has determined how spirituality can help fill the gaps in present concepts of sustainability. A term, 'Sustainable Order' has evolved through the collective concerns of sustainability and spirituality. This

term marks the changes required in our current approach towards future development. The Project further provides a set of guidelines as a basis for sustainable development that suggests:

- Sustainable development should seek the balance, order and harmony of nature;
- It should respect the interconnectedness among various elements of existence;
- It should strive to change the consumeristic attitudes of our modern society through realisation of differences between need and greed;
- It should seek the 'harmonious blend' of the material and spiritual aspects of life by upholding the purpose and intrinsic value of life with the physical means of life.

Based on these guidelines, this MDP also provides a sustainable design process to assist contemporary building design.

Key words: Spirituality and Sustainability, Sustainable Development, Architecture, Sacred Architecture, Feng-Shui, Vaastu-Shastra, Intuition in Design, Spirituality in Architecture.

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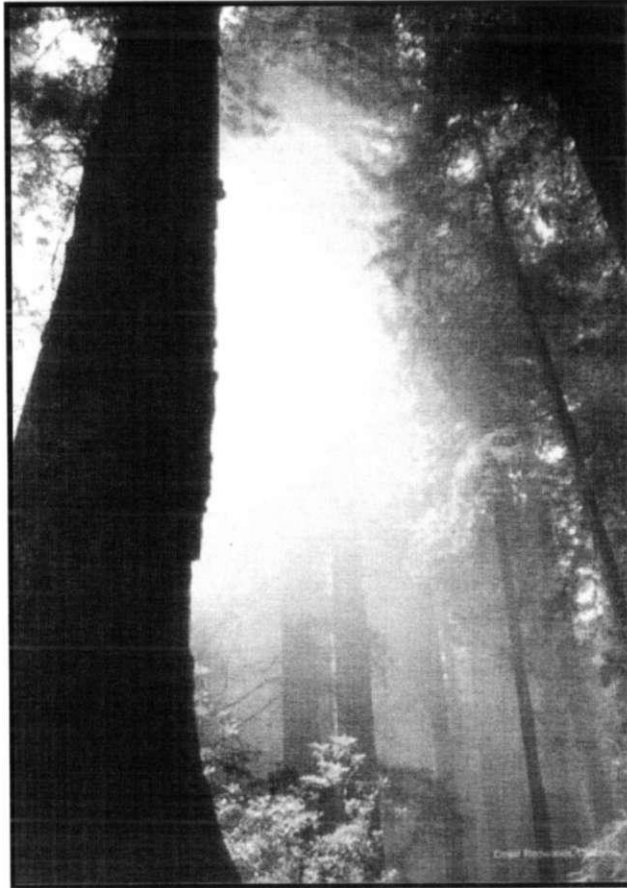
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Chapter 1: Introduction



1.1 Background

1.2 Objectives

1.3 Methodology

1.4 Scope and Limitations

1.1 BACKGROUND

This Master Degree Project (MDP) explores the connection between spirituality and sustainability. It attempts to show how recognition of spiritual values as an integral part of sustainable development can lead to a sustainable future. This hypothesis emphasises the interconnection of various concerns related to sustainability such as, resource consumption, pollution, environmental degradation, and so on. It suggests that spirituality can provide a common basis to draw guidelines for sustainable development in various disciplines. This MDP is presented in two sections. The first section discusses the present social, economical, political, and other scenarios that need to be changed in order to achieve a sustainable future. It further explains how spiritual values can assist to bring out the required changes. The second investigates the application of spirituality in architecture. This section discusses how infusion of spirituality in the built-environment can establish a connection between humans and nature. This section also explores the East Indian concept of '*Vaastu Shastra*' and the Chinese concept of '*Feng-Shui*', traditional ways of building in accordance with spiritual beliefs.

The objective of sustainable development is to achieve a balance and harmony with the natural environment so that nature can continue to exist. The spiritual seeker also seeks a balance and harmony with his/her own inner nature. In ancient Greece, the Delphic Oracle advocated "Nothing to Excess" (as cited in Sachs, Loske, and, Linz, 1998). Buddha has also advocated the achievement of balance by following middle path and avoiding extremes. These concepts mean that happiness can only be found by balancing the material goods and spiritual self (Sachs, et. al, 1998). We are now witnessing an ecological disturbance brought about through the depletion of natural resources, increasing degradation of the

environment, deforestation and desertification, the extinction of flora and fauna, degradation of ethical values and so on. The challenge before us is - how can we decrease humanity's total ecological impact while providing good quality of life for everyone (Taylor, 1996). This demands the rethinking and re-evaluating the purpose, essence and needs of life. Thus we need to examine our spiritual beliefs, which taught all ancient cultures to live in harmony with the ecological system.

Industrialisation and the present economic system have changed our value system drastically. It was a radical paradigm shift, in which we were enamoured by the technological development and humans' belief of having power over nature. We have concentrated on materialistic development and have increasingly ignored our inner growth. Today we are facing an environmental crisis and must find out the thread, which can again connect us to our roots and allow us to grow and regenerate as humans but in a sustainable manner. This Master Degree Project sees this thread as 'spirituality' which can help us to re-examine our roots and make our way towards a sustainable future.

1.2 OBJECTIVES

The main objectives of this MDP are:

1. To draw parallels between concepts of sustainability and spirituality.
2. To explore the ancient building concepts based on spiritual beliefs to assist contemporary sustainable architecture.
3. To establish a relation between spirituality and sustainable development by means of the conclusions drawn from objectives (1) and (2).

4. To assist future development by providing a set of guidelines based on the conclusions drawn from objective (3).

1.3 METHODOLOGY

The following methodology was used to achieve the above-mentioned objectives:

1.3.1 Literature Survey

This involved:

1. Examining relevant data from the literature available on various spiritual beliefs such as Hinduism, Buddhism, and Taoism, etc. in order to seek a connection between spirituality and sustainability.
2. Identifying problems in our societal and political and economical systems challenging sustainable future.
3. Reviewing some of the environmental ethics that are based on spirituality, such as deep ecology.
4. Reviewing some of the thoughts on the spiritual and psychological aspects of the built environment.
5. Identifying the various requirements of sustainable architecture.
6. Collecting available data on the ancient building technologies of Feng-shui and Vaastu Shastra, that are relevant for sustainable development in the built environment.

1.3.2 Case Studies

Section.1 of the MDP illustrates a few cases where spirituality and sustainability blend together in portraying the role of spirituality in sustainable development.

Section 2 of the MDP analyses a few selected existing buildings that are based on the ancient building methods of Feng-shui and Vaastu Shastra. This analysis illustrates the relevance of *Feng-shui* and *Vaastu Shastra* in sustainable architecture. It analyses how these buildings respond to the various requirements of sustainable architecture such as energy conservation, climate responsiveness; the users' physical, psychological, and spiritual requirements; contextual settings; and features of the site. This study also investigates whether or not a spiritual response to building design can lead to an environmental responsive building structure.

1.3.3 Data Analysis

Data analysis involved the compilation of information gathered by means of the above research. Data was analysed in order to see how spiritual values can influence our social, political and economical patterns and thereby solve a number of the problems challenging a sustainable future. Information collected on concepts of spirituality and notions of sustainability was categorised and compared in order to develop an obvious and necessary relationship between spirituality and sustainability and to generate a synthesis from both. Through the integration of spiritual values and notions of sustainability a set of guidelines was generated to assist future development.

The collected data on spirituality in architecture and building concepts of '*Vaastu Shastra*' and '*Feng-Shui*' was analysed to determine the role played by spirituality in building design. The information was further used to draw conclusions about a sustainable design process to assist contemporary building design.

1.4 Scope and limitations

This MDP explores only a few eastern spiritual beliefs that appear to have some ecological context. This is not to undermine the potential of other spiritual beliefs to provide guidelines for sustainable development. Section 1 of the MDP discusses many social, psychological, economical and political issues as a concern for sustainability and does not intend to provide a detailed analysis.

The scope of the MDP is limited to an exploration of the role of spirituality as a basis for sustainable development and to provide a set of guidelines for sustainable development on this basis. It is not intended to provide a means of implementing these guidelines.

Chapter 2: Spirituality and Sustainability: An Introduction



2.1 Spirituality: Looking Within

2.2 Sustainable Development

2.3 An Integrated Approach

2.4 Science and Spirituality as
Counterparts

2.5 Steps towards Sustainable Future

2.1 Spirituality: Looking Within

Spirituality is an awakening, which starts with looking within ourselves for self-discovery and continues on until one realises that we are an integral part of the natural world. In seeking self-realisation, one begins to realise the higher truth and intrinsic value that lies within each element of life and the universe and starts to understand the interconnections and interdependencies among the various elements of the creation. As this consciousness grows within, one becomes more conscious of one's actions and their consequences. Eventually, this awareness leads to remarkable positive change in one's lifestyle and attitude towards other human beings and the natural world. Sewak Saran, an Indian environmentalist states:

When we feel ourselves as part of the whole world, and think to ourselves how this creation is working, how our own being is working within it and who has created it and how; when we try to find the motive behind all this, this is spirituality. Without this internal dimension we may have external culture but we will use it for the wrong reasons - selfish ones - and we will not benefit others by our actions. (As cited in Prime, 1992, p.20)

Spirituality is about becoming aware of the essence of life and the connection between the whole of creation and oneself. An internal search for fundamental significance and meaning of life leads one to values, which are not self-centred but universal such as, peace for the whole world, universal love, compassion for all, and so on; and hence hold the promise for a better world.

2.2 Sustainable Development

The term 'Sustainable Development' as popularised by Brundtland Commission (1986), is *"the development that meets the needs of the present without compromising the ability of the future generations*

to meet their own needs" (as cited in Martell, 1994, p. 45). A development is directed and shaped by its underlying motivating force. In case of sustainable development, this motivation can be seen as a concern for providing good living conditions to future generations without endangering other lives and natural resources. But at present, utilitarian and self-centred modes of living in our society conflict with the goals of sustainable development. As a consequence, a sustainable future can only be achieved by resolving this conflict through a fundamental shift in thinking and the behaviour patterns of modern societies. The International Union for the Conservation of Nature and Natural Resources (1980) also put forward this concern: *"Ultimately the behaviour of entire societies towards the biosphere must be transformed if the achievement of conservation objectives is to be assured."* However, the need to change attitudes and lifestyles can not be forced upon individuals but rather realised and felt within our hearts. Spirituality helps to realise the deeper and higher aspirations of humanity that can play a major role in resolving the conflicts and to control actions motivated by greed and self-centredness.

2.3 An Integrated Approach

Ecologically, sustainability would mean resource conservation and protection of natural environment. However, to achieve a sustainable society, it is imperative to consider the importance of a variety of social concerns such as social equity and justice, and notion of freedom, etc. With the loss of values such as contentment, sharing, goodwill for all, etc. and present materialistic modes of living it is hard to visualise a sustainable society. In a materialistic society where money attracts more money how can we achieve equity and justice? As this paper hypothesises, we need to have a spiritual basis for the realisation of sustainable development.

To achieve a sustainable future, it is essential to integrate social, economical and environmental considerations. Most often, a scientific approach is a reductionist approach, which tends to separate out and examine one issue in isolation. The problem with this approach is best illustrated in the old story of four blind men. Examining an elephant for the first time the four blind persons could not distinguish the elephant as an elephant but instead tried to interpret individual parts; tail, ear, trunk and legs as string, fan, snake and pillar. Today we need an overview, which recognises the interrelation of the things, and looks at the world in as holistic way as possible. A spiritual dimension, which is almost lost today in our social, economical and political systems, can help to establish a base, carrying certain values, for these systems, and can motivate us to be sustainable. As Bender (2000b), an architect and *Feng-Shui* practitioner puts it:

Sustainability requires a true transformation of our basic values, the development of a spiritual core to our lives and society, and a building of institutions that direct our actions in harmony with these values, (p. 4)

Spirituality grants us a deep feeling of interconnectedness with the universe. One realises mutual interrelation of all things in the natural world that leads one not to undermine the other's role in creation. As a consequence, notions of sustainability such as justice, equity, freedom for everybody, and so on become the very base of society and help endorse responsibility towards society and the natural environment, mutual respect and better understanding among individuals, communities and nations.

2.4 Science and Spirituality as Counterparts

For sustainable and harmonious development, cohesion between science and spirituality is essential. This is especially crucial in modern times, when technological development has empowered humans

enormously with the ability to bring about tremendous change in their surrounding environments. This power needs to be controlled by spiritual values for its positive development. Therefore, science and spirituality should not work as opposites but as counterparts assessing each other for sustainable growth. As Satish Kumar (1995), an environmentalist says, "the world cannot be saved by just the technocrats who say, ' we can manage the environment, we are clever people.' But the environment cannot be managed. We can only revere environment; we can only respect environment; and we can only see environment as part of us and us part of environment. This total unity can come only when we have a spiritual base and not just a utilitarian base" (p. 223). The power of science and technology needs to coalesce with the spiritual wisdom for its legitimate use.

Ranchor Prime (1992), author of 'Hinduism and Ecology', presents an analogy to describe the present state of our society:

A man once bought an ornate antique birdcage to decorate his home. He carefully restored it, cleaning and polishing it all day. Inside the cage was a bird, but he took a little notice of it. When he proudly displayed his birdcage to his friends, they were shocked to see that despite the beauty of the cage the poor bird inside was dying of hunger. Modern culture has effectively built a very elaborate cage in which the human spirit is now languishing imprisoned by its own material excesses. Despite its sophistication, this civilisation has failed to see the inner meaning of the life. The bird in the cage is dying, (p. 4)

Our preference for the material over the spiritual is leading humanity towards spiritual poverty. Today science needs to serve as tool for establishing sustainability by working with human beings' higher aspirations rather than becoming a tool for increasing material gains and comforts.

2.5 Steps towards Sustainable Future

Sustainability requires the following four steps:

1. **Awareness towards the Environment:** Sustainability requires awareness of the facts of environmental degradation, and resource depletion resulting from our present modes of actions. We should be aware of the consequences and impacts of our actions in the future, and should be familiar with sustainable choices over unsustainable ways of today.

2. **Realisation of Facts:** Realisation of the facts is essential in creating a sense of emergency and to provide an urge for reviving the harmonious relationship between humans and the natural world. This step is made necessary by the fact that today many people are aware of the threats to the natural environment, however very few of them are able to feel this threat and urgency and take steps to contribute to a sustainable future. As a society, we do not yet agree either on the importance of our environmental problems, or on the ways in which we solve them. To pursue an agreement or consensus, we must first acknowledge and realise the importance and urgency of the sustainability challenge (Miner and Stomberg, 1998).



Figure 2.1: People do not realise the urgency to act towards a sustainable future.

Source: Rees, W.E. and Wackernagel, M. (1996). *Our Ecological Footprint*. Gabriola Island: New Society Publishers, p.26

3. **Care for Nature:** Ultimately, the question is: Do we care about nature and its value? Are we concerned enough to provide a good quality of life for every living being on the earth? Today, this step is the key to sustainability. It motivates us to transform our knowledge into actions, and to achieve a sustainable future through love and care for nature and other living beings.

4. **Action towards a Sustainable Future:** This step follows from the previous three steps. If we are aware of the facts relating to environmental degradation and resource depletion, if we are able to realise the emergency that has arisen from these facts and if we care about sustaining a good quality of life on the earth, then we certainly and naturally will act to restore our planet now for a better future.

Today we can see the efforts that have been made in order to pursue sustainability in terms of environmental education programs, environmental management, ecological design, and so on. However, the success of all these efforts is dependent upon how much we actually care about them. People may be aware of the realities behind the extinction of flora and fauna, resource depletion, environmental degradation, and so on, but the majority of the population does not really care until they are affected directly, and don't feel a sense of urgency to act to ensure a sustainable future. A belief that technology and science can find new ways to deal with the energy crisis renders most people inactive and neutral on the issues of sustainability. People don't realise the importance of their roles and responsibilities in ensuring a sustainable future, and how individual contribution towards the global goal of sustainability can make a difference. With spiritual awareness, comes an awareness towards the individual's role in creation

and responsibility for one's actions. Spirituality also grants us a sense of gratitude towards creation, and a sense of reverence and care for nature, which in turn makes us consciously unable to destroy or pollute the natural environment and guides us towards a sustainable future.

Chapter 3: Spirituality: Connecting Various Concerns of Sustainability



- 3.1 Human Psychology: Root of the Crisis
- 3.2 Culture: Mirror for Environmental Behaviour
- 3.3 Consumerism: Base of Economy
- 3.4 Politics: A Power to Bring Change
- 3.5 Individual and Society: A Continuum

3.1 Human Psychology: Root of the Crisis

A person's psychological make-up consists of his or her attitudes, emotions, and thinking patterns, which govern his or her way of life, actions and behaviour towards others and the environment. Environmental problems are very much associated with the behaviour of human beings. If we are to resolve them, we must examine the connection between our environment and our way of life, as it is impossible to bring about a change in present scenarios of environmental destruction without a corresponding change in the way we behave. To change the way we behave, we first need to undergo a change of psychology. Furthermore, we cannot limit our responsibility towards nature to our actions only; it must extend to what we think and feel. Therefore, environmental problems cannot be separated from the psychology of human beings. As David Wann (1996) puts it:

The environmental crisis is not simply about discharges and emissions; it is about the whole structure that underlies the discharges, the way our world is set up. In the long run, cleaning up our mess won't cure symptoms such as pollution, congestion, and erosion. They will continue to occur as long as our activities and design are programmed wrong. Despite the legislation and technology we've deployed in the past three decades, environmental protection is not just about science and engineering. It's also about human perceptions and habit, (p. 10)

The Dalai Lama (as cited in Sivaraksa, 1997) has said: *"If we develop good and considerate qualities within our own minds, our activities will naturally cease to threaten the continued survival of life on the earth. By protecting the natural environment and working to halt forever the degradation of our planet, we will also show respect for earth's human descendants - our future generations, as well as for the natural right to life of all earth's living things. If we care for nature, it can be rich, bountiful and inexhaustibly*

sustainable..." In other words, the external situations we find ourselves in originate from a state-of-mind that motivates our actions. Therefore, if we see our surrounding environment polluted, it must be as a result of the "pollution" in our mind generated by our greed, hatred and a quest for power.

Environmental degradation is the result of egoism, craving, and greed of many people. Most of the eastern traditions believe that humans are in search of their real destination and purpose of life, but they keep trying to satisfy their inner thirst by materialistic means. This tendency of trying to fulfil our 'true desires' such as self-realisation and knowing that our life has some worth and purpose, with materialistic desires, gives birth to endless wants. Sustainability requires limits, yet our wants have no limits. We need to realise that we can never achieve contentment and happiness through fulfilling materialistic desires such as, owning fancy cars, gadgets, and lands. Satisfying such desires only gives birth to more desires. Similarly, the desire for power and prestige cannot be satisfied as those who seek it never feel that they have achieved enough of it. This craving for achievement also gives birth to many tendencies such as, to conquer, to control, and to own more and more, etc. This leads people to the exploitation of others - not only against other human beings but also of nature. Throughout history people have tried to conquer land to exploit its resources. Today we cannot blame governments and big business for the destruction of nature, because we all agree to benefit from its spoils. As a result, we have played the role of "conquers" of nature instead of caretakers. Spirituality, on the other hand, helps to bring out in us the latent awareness of universality (the understanding of interconnection among all the elements in the universe) and the purpose of life, which ultimately becomes a source of eternal joy. Today at the root of our global environmental crisis is this futile attempt to satisfy our true needs with material possessions. We need to

take a direct route to fulfilment by substituting identity, community, love, and joy for material consumption (Figure 3.1).

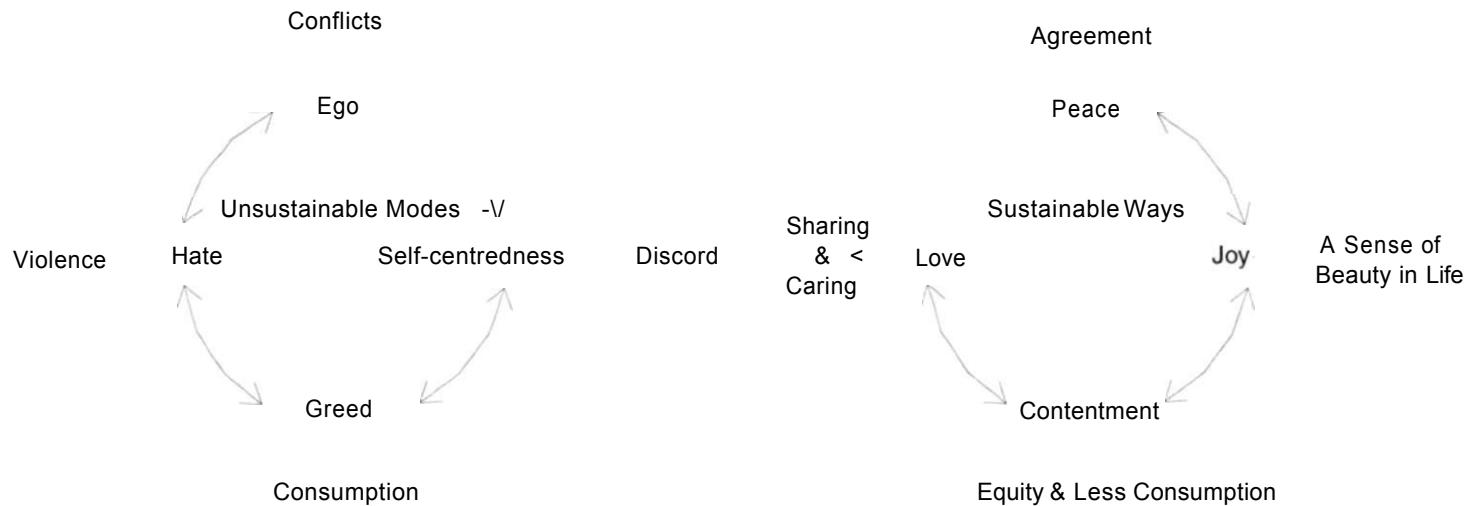


Figure 3.1: Sustainability requires humans' psychology to change from unsustainable modes to sustainable ways.

3.2 Culture: Mirror of Environmental Behaviour

Culture is the expression of the spirit of a society. The lifestyle, attitude and behaviour of the people and their spiritual faith, traditions and customs shape the culture of a society. The cultural richness of a society is always rooted in its spiritual values. These are the values, which determine human relationships with the natural world. For example, the deep spiritual roots in native North American communities helps people to be at one with nature through rites of purification and fasting (Boddy, 1989). We witness that people try to find happiness through having more and more material possessions, Perhaps especially when they are

deprived of love, care, friendship and culture. Unfortunately, material possessions have become an unfulfilling substitute. The People-Centered Development Forum (1993) has put its concerns this way:

We have created a society dedicated to the worship of money and to an economic practice that converts life into money with relentless efficiency. Our collective obsession with the replication of money as the defining purpose of human society is both the cause and consequence of our collective alienation from the reality of the spiritual nature of all life, including our own. It is this alienation that is the root cause of the social and ecological crisis that now threatens our collective future.

Modern culture suffers from a loss of values and fails to create a sense of purpose and meaning in individual lives. Our customs today do not reflect honour and respect for nature and other living beings. Nature has become a source of entertainment through activities like tourism rather than becoming a source of inspiration through pure observation. Present modes do not provide individuals with an environment of true love, care and sharing. We need to develop these qualities in our society.

3.3 Consumerism: Base of Present Economy

The original meaning of economics is 'household management'. This was not so much a science as an art, which was handed down from parent to child: how to grow food; how to produce clothes; how to construct a shelter and care for it; how to join together with others to lighten the burden of the struggle for survival. All this was learned by participation and by sharing in the experience. This was a wisdom not a knowledge which was passed from one generation to another. Here it is essential to differentiate between wisdom and knowledge. In *The Power of Limits*, Gyorgy Doczi (1985) makes a key distinction between them; *"Wisdom is a pulling together, wisdom is a putting together; knowledge is a taking apart. Wisdom synthesises and*

integrates; knowledge analyses and differentiates. Wisdom sees only with the eyes of mind; it envisions relationship, wholeness, and unity. Knowledge accepts only that which can be verified by the senses; it grasps only the specific" (p. 127). Economy based on knowledge will be happy to make more profit by producing more crops using heavy fertilisers and pesticides. But economy based on wisdom will ask question such as; will soil remain healthy in the long run? Will future generations be able to produce as much crop as the present generation? Will the pesticides pollute ground water? Will the produce that comes from the land be nutritious and free of chemicals?

Our present economy is based on encouraging consumerism in order to make a profit. Today the consumption of the earth's resources such as fuel extraction and over-fishing, is proceeding at an alarming pace. We have to learn simpler ways of living in order to have less impact on our planet. Jainism, a religion practised in India, provides a powerful way to check the consumeristic ways of humans. One of the principles of Jainism is non-accumulation of material possessions, in which one defines one's limit of possessing anything on the earth from a pair of shoes to property. This also extends to the amount of food one consumes. This principle may not have resulted from environmental concerns, but in the contemporary context it can help us realise the difference between what we consume and what we actually need. It can make us question ourselves about our real needs. In Buddhism also, a wasteful attitude is seen as not only anti-social but also criminal. Buddhism advocates a gentle, non-aggressive attitude towards nature. According to Sigalovada Sutta, a religious Buddhist text, (as cited in Silva, 1992) a householder should accumulate wealth as a bee collects nectar from a flower. The bee harms neither the

fragrance nor the beauty of flower, but gathers nectar to turn into sweet honey. Similarly, a human being is expected to make legitimate uses of nature.

As North American natives believe, the accumulation of commodities for comforts of daily life is wasteful, because for them the measure of man is the prospering life that surrounds him, not the inanimate objects he has forcefully acquired (Boddy, 1989). But, today on the contrary, advertising and consumerism encourage the accumulation of material possessions and create the illusion of the needs, which do not actually exist. Consumerism has given rise to an energy crisis on the one hand and pollution problems on the other.

Gandhi also said, "there is enough for everybody's need in this world, but not for everybody's greed." This rings true when we see the difference between the resource consumption of the developed world compared to the developing world. Today 20% of the world's population living in the developed world consumes 80% of natural resources. If everyone took enough for one's own need, nobody would face poverty. Therefore, need and greed have to be differentiated. Equity is one of the conditions for a sustainable society but how can we achieve this condition relying on the economy driven by self-centredness and greed? We certainly need a value based economy. As David Wann (1996) writes in his book, *Deep Design: Pathways to a Liveable Future*:

The premise of western capitalism is to convert resource into profit. This premise was born in an era when there were relatively few people and seemingly infinite resources. Now the world faces opposite circumstances - an exploding population and dwindling resources. This indisputable fact will ultimately cause us to rethink the meaning of value.

As currently structured the field of economics measures material wealth but overlooks cultural and biological wealth. It does not adequately measure the value of redwood forests, a sturdy house full of memories, clean water, heirloom vegetable seeds, elephants, crickets, or the sound and smell of the ocean. How can we wean ourselves from our obsession with profit to embrace these more intrinsic forms of wealth? (p. 2)

One of the dubious bargains of the present is that we spend billions of dollars for services that used to be provided free by nature. For example, predators driven to extinction no longer keep populations of rodents or insects in check, earthworms or termites killed by pesticides no longer aerate soils, and mangroves cut for firewood no longer protect coastal erosion. We need to realise that our economy depends on a healthy global ecosystem, not only to supply resources and materials but also to purify air and water, recycle waste, and maintain the beauty of nature (Wann, 1996). We should not lose ourselves in the race to acquire luxurious possessions; or else we may lose our most basic essential life-supporting elements like clean-water, clean-air and organic food.

Paul Hawken (as cited in Wann, 1996) addresses question like these by proposing a new way of looking at economics:

What we have now is a least price economy, wherein we are rewarded for producing things at the lowest price. What we are going to is a least-cost or restorative economy, where we are rewarded for producing things with the lowest impact on the world around us. The least-price economy rewards you for soil erosion; it rewards you for cutting down primary forests and overgrazing cattle on public lands; it rewards you for burning fossil fuels and releasing greenhouse gases. It gives incentives to manufacture products at the

lowest price and to avoid paying for the downstream effects of your activity. Those costs are considered a societal problem, not a commercial one, which is why we have more taxes, more government, and less money. In a least-cost economy we move to that system of agriculture, forestry, transportation, construction, and communication that has the least cost to the environment. In a least-cost economy, those resources, our "natural capital," are valued at their true replacement cost. Instead of competing to produce the cheapest goods in terms of price, we compete to produce the goods and services we need...which have the lowest impact on those resources, and thus lowest cost to current and future generations.... The lowest cost system is the most efficient, in both industrial and biological terms, and is better for the individual who is the customer, the worker who manufactures it, the habitat from which it and for the generations unborn, (p. 50)

Paul Hawken sees the need to shift from a least price economy to a least cost economy in order to reduce the impact of present economy on natural environment. But the materialisation of this shift requires the establishment of a different set of values in society such as looking at long-term cost rather than initial cost, giving preference to energy- efficiency, putting limits on one's needs, stewardship towards nature, and so on.

3.4 Politics: A Power to Bring Change

Politics has power to give direction to future development. Today the responsibility of political institutions is to mark the necessary guidelines for sustainable development in their policies and agendas. Development must aim at the conservation of resources and flora and fauna. It should be based on the reduction of craving and the avoidance of violence. Political institutions have the capability to provide citizens with choices, which are more sustainable and avoid unsustainable ways. They should acknowledge nature's laws and draw policies, which do not violate laws set by nature but rather endorse them in society. Politics

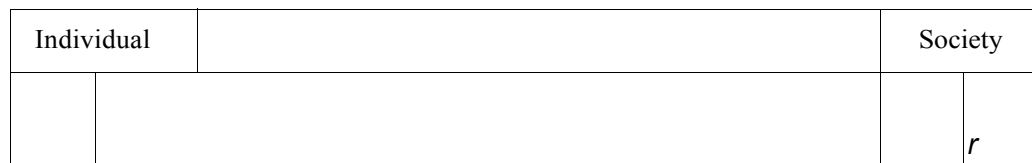
with a spiritual dimension obviously will give more weight to good life based on freedom; happiness and peace than high living standards and comforts based on the accumulation of commodities.

Governments should offer sufficient rewards or incentives to those who conserve resources for future generations and adequately punish those who misuse or damage the environment. Political institutions can endorse sustainable choices by making them available at cheaper price through subsidies rather than unsustainable choices, which can have higher taxes or penalties. Policies can create incentives for the public to go for sustainable methods or vice-versa. For instance, when used oil can be re-refined, most of it is wasted and this results in a major contaminant of the environment. It costs money to re-refine oil. There are no economic incentives for the re-refiners (Suzuki, 1989). A major part of the problem is political - all tax incentives and subsidies go to the discovery and exploitation of crude oil. There should be encouragement to conserve through re-cycling and re-use.

3.5 Individual and Society: A Continuum

The relation between individuals and a society is reciprocal one. An individual depends on society as much as society depends on individuals. An individual is a unit of a society. An individual's attitude and vision is the very base of a society. But society also provides individuals with a system, a set of norms, which condition their lifestyles and attitudes. Sustainability is a global goal; every nation, society and individual has to play their part for sustainable future. However, the question is: How do we work together as individuals, having different values, for common goal? Some societies, for instance, the East Indian and

Chinese, have strong societal system but they lack in recognition of an individual's values. On the other hand, individualism is extreme in North America. What we need today is a right mix of individuality and a sense of community and collectivity. Individuality is needed to recognise one's own ability and responsibility; take initiatives; create self-renewal and freshness in the social system. A strong sense of community is needed for active participation of individuals towards common goal of sustainable future. Spirituality on one hand helps individuals to realise their own aspirations through self-discovery but on the other hand it creates a strong sense of linkage between individuals and the larger system by making them realise their roles and responsibilities towards it.



3

Spirituality

Figure 3.2: Spirituality balancing individual and social values.

Spirituality provides individuals with a common ground where they can work together, making use of each-other's capacities and capabilities (Figure 3.2). In many ancient traditions, spirituality was part of the societal system. Decisions were based on spiritual values, regardless of whether they were related to social or economic matters. For effective actions towards a sustainable future we have to start at both the individual and community levels (Table 1).

Characteristics/Types of Society	Individualistic values dominates society	Social values govern individuals	A right mix of individual and social values
Individual Vs Society	Individual Society -----	Individual Society y \-----* ~	Individual Society J, si
Strengths	People are aware of their rights and capabilities. They easily take initiatives and volunteer.	People have strong sense of belonging to a society. They can act together for a common purpose.	People are aware of both their rights and responsibilities. They know their place and role in a society.
Weaknesses	People may feel lack of belonging to society and hence lack of responsibility towards it.	Strong social norms can become a hindrance to change the wrong social customs.	Individuals' values and social values maintain a balance by correcting each-other's shortcomings.
Environmental context	Individuals may be unable to form a common goal and commitment to resolve the problem. Individuals' values may be conflicting with restoration and protection of environment.	Individuals feel a lack of empowerment and try to manage to live with the crisis instead of changing the situation.	Individuals can commit themselves to form a common goal for protection of the environment.

Table 1: The relation between individuals and a society

Humans, as individuals, societies, and institutions, need to acknowledge the fact that we can no longer be governed by materialistic and utilitarian attitudes if we are to achieve sustainability. Our thoughts, lifestyles, and actions need to be in harmony with nature's laws. In order to achieve harmony with nature, we first need to reconnect our spiritual values as a guiding force towards the balance we want to achieve. We need to build a strong moral concern for ecosystems in our society, as ultimately it is the society, which chooses the way it lives, science and technology can only provide tools and choices for living.

Chapter 4: Human in Nature



4.1 Human and Nature: A Sacred Bond

4.1.1 Nature as Mother

4.1.2 Nature as God

4.1.3 Sustainability: A Duty towards Sacred Relation

4.2 The Theory of mutual dependency and interconnectedness

4.1 Human and Nature: A Sacred Bond

4.1.1 Nature as Mother

In many ancient cultures, nature has been seen as 'sacred' not as commodity to exploit. The relationship between nature and humans is often seen as that of mother and child. This relationship, therefore, is of love and care, and not of using nature as means to reach self-centred ends. Nature like mother nurtures us and takes care of our essential needs. Instead of trying to satisfy our unlimited wants, we should be happy to receive whatever she has to offer us. Today this sacred relationship is eroding as earth-based cultures and economies are being converted into market-based cultures and economies and as earth dependency is being exchanged for market dependency (Spencer, 1997). Only re-enforcement of the faith, that all of creation is sacred and beautiful, not merely useful, in modern culture, can save the earth from destructive modes of present. Sustainability can only be achieved by restoring this sacred bond between humans and nature.

4.1.2 Nature as God

In many cultures seeing nature as sacred and associating natural elements such as trees, rivers, and mountains with god have strengthened the relationship between people and nature. The *Isa Upanishad*, a religious Hindu scripture, tells that everything, from a blade of grass to the whole cosmos, is the home of God (as cited in Prime, 1992). God lives in every corner of existence. Therefore the whole of creation is sacred. This sense of sacredness in the whole of creation was fundamental to the Hindus' relationship with nature. The faith that god resides in each particle of the universe made them observe nature closely. Hindus saw nature's "law of return" that everything, which grows out of the earth, goes back to the earth.

Therefore they made this law for themselves that what they take from nature must be offered back to nature. This attitude evolved into a strategy to preserve the integrity and stability of the biotic community. For instance, there was a custom that required one to plant five trees for the future when one took a tree to build a house (Prime, 1992). This tradition was known as 'panchvati', which means five trees. In the Atharva Veda, one of the oldest Hindu texts, earth is invoked with a feeling of great humility (as cited in Khanna, 1995):

*Whatever, I dig of you, O Earth,
May that grow back upon you,
O Pure One, may my thrust never pierce thy
Vital points, thy heart.*

(Atharva Veda, 12.35)

If we become sensitive to using natural resources and have this attitude of reverence, we will never be able to destroy, pollute or deface nature.

4.1.3 Sustainability as Duty towards the Sacred Relation

In the present context, sustainability can be seen as our duty to restore this sacred relation. We have to manage our activities in a way that respects nature's laws, takes care of its resources and does not destroy or pollute nature's elements. We can show this honour for nature in our day-to-day activities and this can be an

effective tool for sustainability. Here is an example of sacredness leading to sustainability from Srimad Bhagvatam, a religious text of Hindus (as cited in Prime, 1992):

Krishna, a Hindu god, was a cowherd and lived as a child among the twelve forest of Vrindavan, a small town in India. Srimad Bhagvatam, a holy book of Hindu, gives a description of an event when he rejected ritualistic worship in favour of an earth-based practice of religion, which recognises the sacred in the everyday relationships between human beings and their environment. During his lifetime there was a tradition to worship a demigod, called Indra for rain. He denounced the cowherds' act of religious worship. He explained that law of karma is that by our practical actions we create our future, good or bad. It was more important to take care for the hills and cows than to worship Indra, the demigod. We always live in the forest and among the hills. Therefore we should begin a festival in honour of the cows, forests and Govardhan hill, a hill in Vrindavan. (p. 54)

The lesson here is that we should not have the attitude of controlling natural phenomena for our own benefits or according to our will, instead we should closely observe the nature's course and act in harmony with it. Srivatsa Goswami, a devotee of *Krishna* suggests that this story is the key to environmental problems today (as cited in Prime, 1992, p.55). We depend on others-agencies, local government, the UN environmental funds to do something; we shift our responsibility to somebody else when all the time it is we who are responsible for our own predicament. *Krishna* spoke like this to destroy the ignorance of his own people, saying, "*your environment is your concern, it is your duty*". Today it has become imperative to realise that taking care of environment is duty of every individual, community, city and nation; and everyone has to do his/her own share.

4.2 The Theory of mutual dependency and interconnectedness

The concern for environmental conservation and protection is based on a natural law of mutual dependence and reciprocity. The way we treat nature determines the ways in which nature will treat us.

James Lovelock's Gaia theory sees the whole earth as one body. It proposes that all life on earth has a symbiotic relationship with the planet. The balance between living organisms and the planet's systems is maintained so precisely that the multiplicity of all living things may be considered as one great organism, in the same way that all the cells of your body go together to make up 'you' (Baggs and Baggs, 1996). A change in one part of the system produces follow-on effects throughout the web of life, which makes the greater organism. Today, the intimate inter-relationship of all life forms should be the basis of future development.

The *Vedic code* states that we live in a participatory universe, which threads together man and his active actions in nature in a causal chain. When there is a genuine caring and sharing it brings about beauty and bounty in the environment and maintains the eco-balance. The Buddha also saw the world as a network of many-sided, reciprocal causal patterns, which interact. The object and the subject in experience have no independent existence but dependent origination (Silva, 1998). This law refers to an interconnected and interdependent structure in the universe.

This mutual dependency and interconnectedness of all life forms should be central to policies for a sustainable future. We, as humans, need to recognise that we are only a part of web of life on the earth and we should not deface the self-existing harmony and balance in nature. As the Lakota thinker, Luther Standing

Bear (1988) wrote, *"All this was in accordance with the Lakota belief that man did not occupy a special place in the eyes of Wakan Tanka, the Grandfather of us all. I was only a part of everything that was called the world."*

With the introduction of quantum theory and theory of relativity, interconnectedness of all matter has become an essential element of modern physics, as Capra (1991) explained:

The basic oneness of the universe is not only the central characteristic of the mystical experience, but is also one of the most important revelations of modern physics. It becomes apparent at the atomic level and manifests itself more and more as one penetrates deeper into matter, down into the realm of subatomic particles. As we study the various models of subatomic physics, we shall see that they express again and again, in different ways, the same insight- that the constituents of matter and the basic phenomena involving them are all interconnected, interrelated and inter- dependent; that they cannot be understood as isolated entities, but only as integrated parts of the whole.
(p.131)

The contemporary Vietnamese monk and poet Thich Nhat Hanh (1988) encourages his students to break out of their self-centredness by understanding the interconnection of all living things, as he says:

When we look at a chair, we see the wood, but we fail to observe the tree, the forest, the carpenter, or our own mind. When we meditate to it, we can see the entire universe in all its interwoven and interdependent relations in the chair. The presence of the wood reveals the presence of the tree. The presence of the tree reveals the presence of the sun, air and water and so on. Meditators can see the one in many, and the many in the one. The chair is not

separate it exists only in its interdependent relations with everything else in the universe. It is because all other things are. (p.90)

So in the existence of a chair we can see the presence of the sun, water, air, tree, the person who made it, the tools used for making it and so on. Similarly, humans exist only in relation to everything else in creation. Humans have become habitual to act as they are the centre of universe rather than acting as a link in the chain of creation. This attitude of self-centredness has become a danger to the environment as it destroys the harmony and balance of eco-system.

The early Buddhism believes there is a close relationship between human morality and the natural environment (Silva, 1992). This idea has been systematised in the theory of the five natural laws that can be translated as physical law, biological law, psychological laws, moral laws and casual laws. While the first four laws operate within their respective spheres, the law of causality operates within each of them as well as between them. This means that the physical elements, i.e. earth, water and air, of any given area affect the growth and development of its biological component, i.e. flora and fauna. This in turn influences the thought patterns of the people who interact with the flora and fauna. These thought patterns determine moral standards. The opposite process of interaction is also possible. The morals of humanity influence not only the psychological make-up of the people but the biological and physical environment of the area as well. Thus the five laws demonstrate that humanity and nature are bound together in a reciprocal relationship with changes in one necessarily cause changes in the other. Consequently, when humanity is demoralised through greed, famine is the natural outcome; when moral degeneration is due to ignorance,

epidemics are the inevitable result; when hatred is the demoralising force, widespread violence is the ultimate outcome. The world, including nature and humanity, stands or falls depending on the type of moral force at work. If immorality grips society, people and nature deteriorate; if morality reigns, the quality of human life and nature improves. So early Buddhism clearly depicts the reciprocal relation between sustainability and spirituality. For the survival of the world today, we need an inward transformation of values. An outward transformation of the environment would be the natural outcome. This reinforces the idea that we need a spiritual base for sustainable development in order to provide better quality of life to future generations.

Chapter 5: Examples: Where Spirituality blends with Sustainability



5.1 A Buddhist Monk's Response to Environmental Crisis

- 5.1.1 Deforestation in Thailand
- 5.1.2 Identification of Problems
- 5.1.3 Handling the Crisis
- 5.1.4 Results

5.2 Auroville: A Model Community

- 5.2.1 Introduction
- 5.2.2 The vision for Auroville
- 5.2.3 Aim of the Township
- 5.2.4 Policies and guidelines
- 5.2.5 Beginning of Auroville
- 5.2.6 Sustainability in Auroville
- 5.2.7 Conclusion

5.1 A Buddhist Monk's Response to Environmental Crisis¹

5.1.1 Deforestation in Thailand

Ajahn Pongsak is a Buddhist monk, who believes that a spiritual life includes active participation in society to relieve suffering. He is the abbot of Wat Palad, a temple in the north of Thailand where he works with villagers of Mae Soi River valley to reforest and irrigate their rapidly desertifying land. In 1970s, a tobacco and a timber company destroyed the forest in the valley, and then the villagers themselves began to saw off the branch they were standing on. The whole country faces a similar situation. Almost 80 per cent of the jungle, which once blanketed Thailand, has disappeared in less than 25 years. In 1985, as the environmental losses became economic ones, the government put a temporary ban on logging. Ajahn Pongsak describes the problem of the destruction of the forests in Thailand as following (as cited in Brown, 1992, p. 89):

Our government officials possess the power and the authority to solve the problem of the destruction of the forests and the problems that are being created by this. But what we see instead is that our natural resources are being erased right in front of our very eyes. Wherever officials see some benefit they can derive from the forests, they use the power and authority to shield those who are bringing about the problems for the society by destroying the forest.

When villagers go into the forest to get timber for their own personal needs, they know that they are breaking the law. But on the other hand, when these villagers are hired by officials to fell trees and saw them up for timber for sale, then no laws are being broken! Things have reached such a pitch that if we look at just who is responsible for creating such predicaments for the nation by destroying the forest, we find that there are just too many of them to prosecute. If they started to arrest people in this province, they'd have to arrest everybody

¹ This Case study has been cited from Brown, K. (1992). In the water there were fish and the fields were full of rice. In Batchelor, M. & Brown, K. (eds.). Buddhism and Ecology (pp.87-99). London: Cassell Publishers Limited.

from the governor down to the simplest villager because everybody is breaking the law. So everybody is equally wrong. Who should treat whom for the illness?

5.1.2 Identification of Problems

Ajahn saw the destruction of forests as damage of *siladhamma* in society. Ajahn believes that to reawaken and bring back *siladhamma* is essential to deal with this crisis. *Siladhamma* does not simply mean 'morality' as is supposed. Its true meaning is 'harmony', the correct balance of natural harmony. The balance of nature is achieved and regulated by the function of the forests. So survival of the forest is essential to the survival of *siladhamma* and our environment. If one has nothing to eat, one may resort to crime. The forest is the creator of environmental *siladhamma*, ensuring a healthy harmony in people's lives both physically and mentally.

Furthermore he pointed out the lack of self-reliance in villagers:

Those who live in countryside have no part in the developments that are taking place...The government and the officials are seen as the owners of the country. Villagers have no initiative in self-help, in co-operating physically as a group for the sake of the common good or for their own communities. They sit and wait for the help in building or carrying out every type of community work although they, in fact, have time to do such work themselves. (As cited in Brown, 1992, p. 94)

5.1.3 Handling the Crisis

Ajahn decided to set an example by personal action. In 1985 he arranged a meeting with the heads of all nine local villages. He told them that the forest is not only the source of national and natural wealth, but also their first home and second parent. It is the forest, which gives them life after their human parents give them birth. The land is able to feed them only so long as there is water, and it is the forest that provides water for the land, and so food for them. A mind that feels no gratitude to the forest is a coarse mind indeed- without the basic siladhamma, how can a mind attain enlightenment?

The villagers listened to him and the 5,000 villagers have established a tree nursery. They have terraced eroded hillsides and planted 170,000 seedlings, dug four stream fed reservoirs, seven kilometres of canals and ten kilometres of dirt road for access, and eighteen kilometres of fencing around newly planted areas. All decisions were collective, as is the responsibility for maintenance. Each Family contributes a day's labour of one of its members on a monthly basis.

Ajahn's believes that in short term, the need is to curb the problem by helping people to understand that their own survival depends on the forests and water courses and teaching them the skills and knowledge they need to generate the devastated land. But the long-term solution lies with the religion that has been the strength of Thailand for centuries.

5.1.4 Results

The Ajahn's spiritual and ethical approach to nature is producing the hard results needed in a crisis. Around the country, there are now scores of monks following his example in their own communities. Ajahn faced many problems such as, death threats from local heroin growers and denial of support from authorities, but with his spiritual approach, he is able to unite the villagers for common good. He is able to re-establish a sense of sacredness and connectedness among the villagers for the forest.

5.2 Auroville: A Model Community



Figure 5.1: Forest area in Auroville.

Source: Pitchandikulam. Available at <http://www.auroville.org/pitchandikulam.htm>

Auroville is a small community in the southern coastal part of India. It draws its inspiration from the vision and work of a great Indian seer, Sri Aurobindo (1872-1950), and was founded in 1968 by his spiritual collaborator Mirra Alfasa (1878-1973), called 'mother' by her followers.

They wanted to create an ideal community, which can serve as a model

for future development, and a place where people from all over world can live together. Auroville has been recognised as an international trust by a unique parliamentary act of the Indian Government. Today Auroville

is an expanding community of about 1,500 people from India and from 30 countries around the world (Auroville Universal Township [AUT], 1996a).

5.2.2 The vision for Auroville

The vision for Auroville as visualised by the founder (as cited in Sri Aurobindo Ashram Trust [SAAT], 1977):

"There should be somewhere upon earth a place that no nation could claim as its sole property, a place where all human beings of good will, sincere in their aspiration, could live freely as citizens of the world, obeying one single authority, that of the supreme Truth; a place of peace, concord, harmony. The needs of the spirit and the care for progress would get precedence over the satisfaction of desires and passions, the seeking for pleasures and material enjoyments. The needs of the body will be provided for equally in the case of each and everyone. In this ideal place money would be no more the sovereign lord. Individual merit will have a greater importance than the value due to material wealth and social position. Work would not be there as the means of gaining one's livelihood, it would be the means whereby to express oneself, develop one's capacities and possibilities. In brief, it would be a place where the relations among human beings, usually based almost exclusively upon competition and strife, would be replaced by relations of emulation for doing better, for collaboration, relations of real brotherhood." (p. 7)

The founder of township also admitted that this vision is far from present reality, as she said, *"the earth is certainly not ready to realise such an ideal, for humankind does not yet possess the necessary knowledge to understand and accept this ideal. That is why I call it a dream. Yet, this dream is on the way to becoming a reality"*(as cited in SAAT, 1977, p.7).

5.2.3 Aim of the Township

Auroville has been seen as an experiment to create a new society expressing and embodying higher consciousness. The main guiding principle of the Auroville experiment is that the only way to effect the revolution the earth needs is by undergoing personal and individual inner change. Auroville is visualised as a laboratory where material and spiritual solutions to the difficulties of modern humanity are being searched to create the circumstances favourable to this inner shift (SAAT, 1997).

5.2.4 Policies and guidelines

To work on this ideal, a very different and flexible framework was needed. Initially no rules or laws were formulated. As the founder said, "It is the experience of life in the town itself should slowly work out rules that are as simple and as wide as possible, in such a way as to be always progressive" (as cited in SAAT, 1977, p.18).

However, a set of practical principles was given to work towards the aim of the township. To free citizens from preoccupation of materialistic needs and desires for private ownership has been restricted, and the circulation of money has been kept to a minimum by encouraging the exchange of products and labour.

5.2.5 The Beginning of Auroville

It is very important to see the initial condition of Auroville. Almost 30 years ago, Auroville was a visibly dying land with large expanse of barren red earth scarred by gullies and ravines with only an occasional palm or banyan tree (Figure5.2). This was a result of 200 years of deforestation, bad land management and

overgrazing. So, the first challenge was to bring back the life to the land by reforestation, and reclaiming the wasteland. Hence in the early years drought resistant and fast growing Australian tree named, *Acacia auriculiformis*, was planted. It has provided a lot of biomass, Opened Up Soil so that the

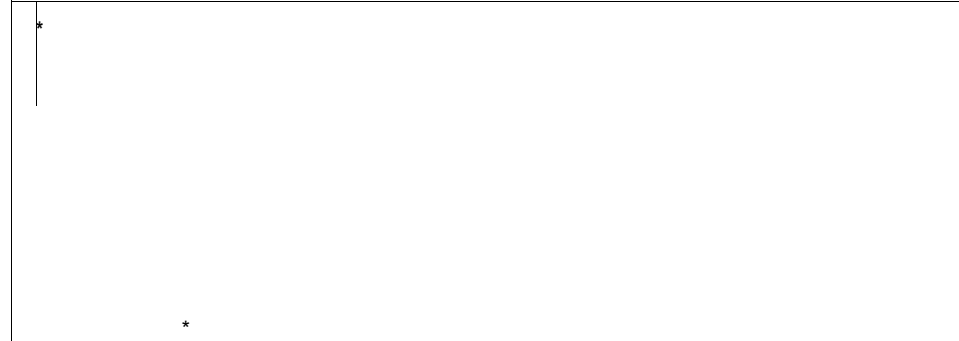


Figure 5.2: Land before and after Auroville.

Source: Auroville (1996). *Environmental Regeneration*. <http://www.auroville-india.org/activities/envregen.html>

rainwater could infiltrate more easily and prepared the ground for indigenous species to grow under its protective forest cover. Now, the original trees (named "work trees") are dying out as they do not grow much older than 20 years and the focus has shifted to the reintroduction of indigenous species such as banana, coconut palm, bamboo, cashew and so on. Today, more than 2,500 acres has been transformed into a lush green area (AUT, 1996b).



Figure 5.3: One of the early structures in Auroville.
Source: Bhatt, V. and Scriver, P. (1990). *Contemporary Indian Architecture: After the Masters*. Ahmedabad: Mapin Publishing Pvt. Ltd., P.109

5.2.6 Sustainability in Auroville

Sustainable development was the essential part of the vision for Auroville. The visionaries wanted to achieve a self-sustaining community. The aim for development was to rely mostly on renewable sources of energy and the use of locally available, low cost building materials (Figure 5.3 and 5.4). The founder of Auroville remarked that coal and oil are fossil fuels of the past



Figure 5.4: A group housing in Auroville. Compressed earth blocks were used for all pillars and walls with five per cent cement content. Local Terracotta tiles were used for roofing.
Source: Iyer, S. (1997, October). *Earthy pleasures*. Indian Architect & Builder, 11 (2), 31

and referred solar energy as the power of the future development. Major forms of renewable energy utilised in Auroville today are solar, wind and biogas. Auroville has several collective kitchens and some of them work on solar power (Figure 5.5). This concept of collective kitchen reduces a significant amount of energy consumption and the time and energy invested by individuals. The energy policy governs that energy requirements of Auroville should:

- Cause minimal depletion of natural resources;
- Cause minimal local pollution;
- Cause minimal pollution during the process of extraction, transformation and transportation;
- Have dependable sources;
- Have energy saving equipment and techniques, such as climatic architecture and non-polluting, renewable energy devices (Auroville, 1996).

Auroville's policies make sure that everybody's essential needs such as accommodation, food, and clothing are fulfilled, and everyone contributes by working or donating money for the welfare and development of whole town. For example, industries either provide part of their profit or contribute products. These policies not only lead to a better quality of life for everyone but also provide the freedom and spirit to work for better future. Auroville, which is an experimental town itself, has become a place to experiment with environmental

policies, new building techniques, innovative art and crafts, etc. As Iyer (1997), a practising architect in Auroville says, *"Auroville has become an ideal laboratory for experiments with appropriate building technologies such as, adobe construction, Ferro-cement, waste water recycling systems, etc."*(p. 29).

Today Auroville is heading towards its goal of a self-sustaining community, by generating its most of the energy from renewable sources, using appropriate building technologies for building construction, recycling waste water for irrigation purposes, growing their own food, and so on. Small-scale industries, farms, poultry, training and learning centres and a green belt surrounding the town, all based on principles for enhancing the natural environment, insure progress towards a sustainable future.

5.2.7 Conclusion

Auroville has taken a two-fold path towards sustainability. On one hand, it is realised that a different life-style, intentions, and attitudes are needed in order to change the present scenario. On the other hand, appropriate technology is required to change energy-consumption patterns. Here one can see the unique blend of science and spirituality. If appropriate technology is available such as solar panels, alternative building materials, energy saving devices, but people are not willing to use them or policies do not



Figure 5.5: One of the community kitchens in Auroville that utilises solar energy for cooking.
Source: AUT (1996c). *The Solar Kitchen*. Available at <http://www.auroville.org/society/solarkitchen.htm>

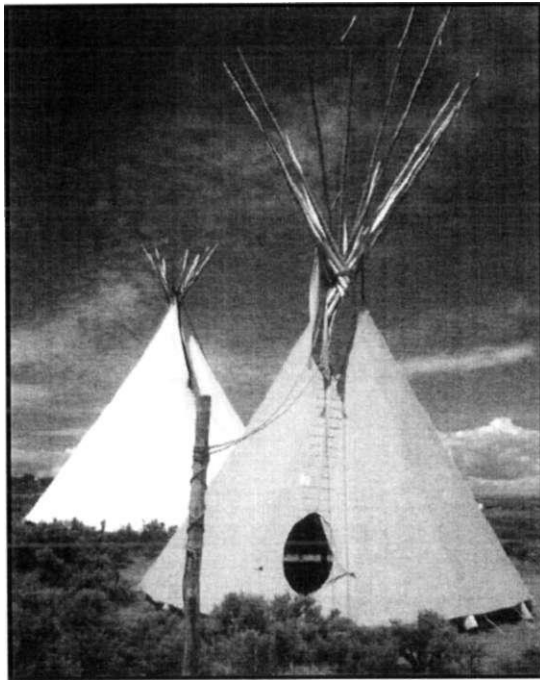
encourage their use, their existence does not accelerate the way towards sustainability enough that we can reach before ecosystem collapses.

Furthermore, it is easier to visualise a sustainable community when everybody's actions are guided by a collective goal, such as in the case of Auroville. Here we see a community expressing and embodying a higher human consciousness. This is not to say that there are no conflicts among individuals' values but clear societal goals help to solve these conflicts.

Chapter 6: Spirituality in Architecture

All man-made things are worthy of life.

Frank Lloyd Wright



6.1 Spirit of the built-environment

6.2 Characteristic of a spiritual design

6.2.1 Response to psychology of users

6.2.2 Honouring Nature

6.2.3 Sense of sacredness

6.3 Approach to spiritual Design

6.3.1 Let it happen

6.3.2 A Holistic Approach

6.3.3 Working with nature

6.3.4 Examining the objectives and intentions of Design

"Today is the day I put up my home. I leave you to the care of the four winds... You, our maker, direct us whether it be good or bad; it is your will. Help us to think of you everyday we live in this lodge; guard us in our sleep; wake us with clear minds for the day, and keep harm from us."

- Dedication of Plains Cree tipi.

6.1 Spirit of the Built-Environment

Our built-environment reflects what we value and how we live. It shows whether we know ourselves as part of the great universe or if we see ourselves apart from it all. Today, we can see modern societies' utilitarian modes being transferred to architecture as buildings are being increasingly designed on the basis of utilitarian needs, or a self-indulgent aesthetics. John Lobell (1979), author of *'Between the Silence and Light: Spirit in the architecture of Louis I. Khan'*, has put the relation between people and their architecture as following:

If we define ourselves and the world as measurable, our architecture will be measurable and without spirit, but if we allow ourselves to be open to the meeting of the measurable and unmeasurable, our architecture can become the celebration of that meeting and the abode of the spirit, (p. 3)

But today we are increasingly making dead spaces like machines in which to live and work, instead of creating living places in harmony with natural environment and our deeper aspirations. Very often, modern buildings disregard the psychic and spiritual needs of human beings. While fulfilling functional requirements, our buildings should be able to provide spaces in harmony with our inner vision, and our connection with nature and its creation.

Spirituality is about discovering real meaning and purpose behind our life through connecting ourselves to our heart and spirit. Spirituality in architecture would mean designing buildings that can move our hearts, which can lead us to wholeness and totality through generating a sense of harmony, joy and well being. A spiritual design is always based on how design can establish a good relationship with our existing

surroundings and its users' aspirations. It must be able to evoke the feeling of contentment and well-being in its users. Like spiritual seekers, buildings should seek not only to have a minimal physical impact on the surrounding environment, but also should become one with the existing environment through a 'harmonious integration' of the built environment and natural environment.

Building activity is one of the major factors responsible for the future of our planet as almost 80% of resources go in constructing and operating them. Yet there is another component to buildings' impact on the earth's resources that is not apparent, but effects the consumption patterns, i.e. how building design affects users and their life-patterns. A good design of a house can not only reduce energy consumption through climatic responsiveness, using local building materials; but also it can reduce residents' consumeristic instincts by providing them a sense of contentment and peace. It can add to the quality of life by creating a comfortable and tranquil atmosphere without adding much acquisition within the house.

6.2 Characteristic of a Spiritual Design

6.2.1 Response to Psychology of Users

Spiritual values are very much associated with our emotions and our beliefs and hence psychology. Very often, contemporary architecture fails to respond to the psychological and spiritual aspects of buildings and spaces. As Onno Greiner (1991) says it, *"In architecture the functionalism before war is still misunderstood by the materialistic thinking of idealistic architects. Its main function is not the material but the psychological one; anything else is of less importance"* (p. 481). Today more emphasis is placed upon

physical comfort, than upon the psychological comfort generated by the spatial patterns of a building. We need to express the special spirit of every place by creating homes not only for our activities, but for our spirits.

In most cases, a building's program is designed on the basis of utilitarian needs related to the intended use of the building. There is not much concern regarding how users should experience the building itself. As Victor Papanek (1995) says it, *"Building technology and with it most architecture, is concentrated on square-foot costing, profits and the quickest return for the balance sheet - the 'bottom line'. Yet architecture can only flourish if the dwellings built are in harmony with the people who live in them, with nature and culture"* (p. 104). Designers need to pay attention to the psychological functions of buildings and create

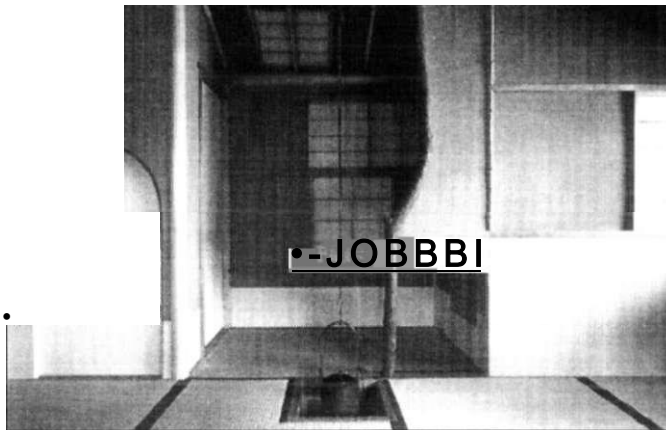


Figure 6.1: A tea room, a place to retreat and think, in a Japanese architect's home.

Source: Kurokawa, K. (1991). *Intercultural Architecture*. London: Academy Editions, p.11

appropriate moods in the built-environment. For instance, the fundamental purpose of a hospital is to heal, so a hospital building should generate an environment of nurturing and healing, while fulfilling the other functional requirements of a hospital. Similarly, a house is a private place for a person or family. It should not only express

the residents' aspirations, being an essential part of them, but should help them to reconnect with themselves. A house should be able to soothe the residents' aspirations, elevate their spirit when required, provide them a sense of security and peace, and so on.

Traditional Japanese architecture is a fine example of response to the psychological needs of users. One of the features of Japanese architecture is the intermediate zones, which are not purely for functional purposes but are designed to accommodate other features that can not be explained in functional terms (Kurokawa, 1991). This involves "silent" spaces: spaces of withdrawal or detachment such as a corridor, a veranda, and an alcove. In a building these spaces are of spiritual significance that respond to the need of mental repose, calm and detachment (Figure 6.1).

6.2.2 Honouring Nature:



Figure 6.3: The opening in the Tipi invariably connects dwellers to the sky, sun, moon and stars.
 Source: Pearson, D. (1994). *Earth to spirit*. San Francisco: Chronicle Books, p. 47

Spirituality is about honouring the creation and its elements. As nature is very much close to creation, a spiritual design should essentially reflect a deep honour for nature. Honouring nature would mean allowing nature's laws to guide for design solutions and creating a built-environment that can establish interconnectedness between people and nature, The traditional

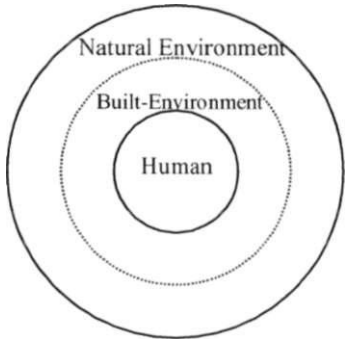


Figure 6.2: Built-environment should bridge connecting human and nature and reinforcing a healthy relationship between them.

The traditional architecture of many cultures exhibits such links to nature. Connecting buildings to the cosmos, sun, moon, stars, sky, mountains, and so on is common in many traditions. For example, Tipi of Native Americans (Figure 6.3) is seen as dome of the sky and the opening in it invariably

connects the dweller to the sky, sun, moon and stars (Mann, 1993). Egyptian architecture also exhibits the connection between buildings and nature. A French philosopher and Egyptologist, Schwaller de Lubeicz (1887-1961) suggested that the buildings in Egypt did not just get designed but grew from consciously planted seeds (as cited in Mann, 1993). Just as plants create stems according to the Golden mean, so the proportions governed the increase and multiplication of parts into the whole in Egyptian architecture. This principles also led to the recycling of the Egyptian temples, which were taken down when they were obsolete and their building material were used as the 'seeds' for subsequent buildings. He found traces of such 'seedlings' at Luxor (Figure 6.4).

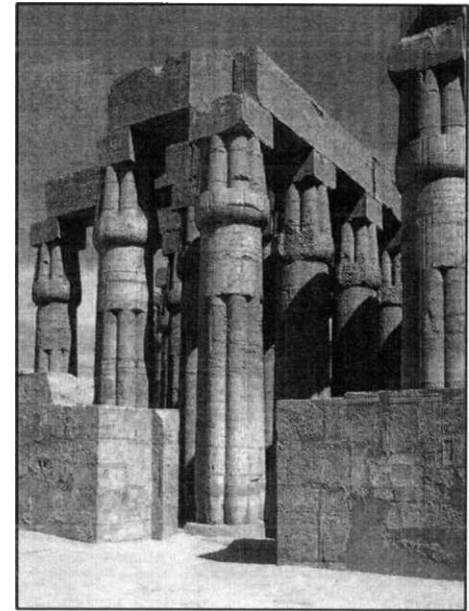


Figure 6.4: Temple of Luxor. Columns are abstractions of bunched and tied papyrus or other reeds and reflect the Golden mean.

Source: Mann, A. T. (1993). *Sacred Architecture*. Dorset: Elements Books, p.110

6.2.3 Sense of Sacredness:

Associating the sacred with oneself and one's surroundings is an essential part of a spiritual life. A sense of sacredness is a very basic element of a religious building but as spirituality becomes a way of one's life, this element starts becoming an inseparable part of one's immediate environment.

The sacred is something, which we value and respect. A sense of sacredness is generated by giving our beliefs and values a place in our surroundings. Honouring the spirit of place also generates a sense of

sacredness. Sacredness finds its place in buildings sometimes as symbols, sometimes as sacred objects and sometimes as sacred plans. Examples of such buildings can be found in all cultures (Figure 6.5 and 6.6).



Figure 6.5: Statue of lions and traditional lantern at the entrances to buildings invokes a sense of sacredness in a typical Japanese street.

Source: Kurokawa, K. (1988). *Rediscovering Japanese Space*. New York- Wfiatherhill n 14

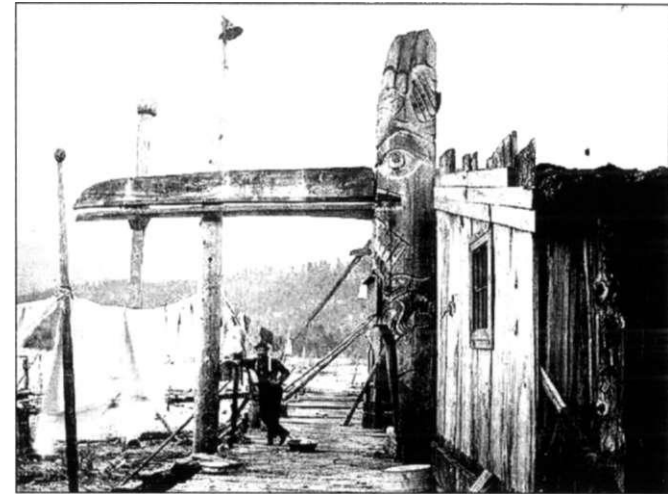


Figure 6.6: A Totem pole featuring a Raven with a long beak, a Beaver and Eagles serves as an entrance to the house at village Talio in Nuxalx. Totem poles are sacred to the aboriginal, as they are associated with the ancestors' spirit.

Source: Royal BC Museum (1995). *Totem Poles*. Available at <http://rbcm1.rbcm.gov.bc.ca/totems/totemslb.html>

6.3 Approach to a Spiritual Design:

6.3.1 Let it happen:

A Chinese concept, called Wu Wei, describes, "*let the things follow in their natural course and all will be in harmony*" (Venketesh, 1999, p.42). This concept is the key to bring about harmony within the built-environment. Contemporary architecture faces the problem of the influence of the designer's ego in

building design, which becomes a barrier to realisation of the true meaning and essence of a built-form. Very often, buildings are the egoistic expressions of designers and are based on some abstract meaning of their conjecture, which fails to build any connections with a common and deeper ground within us and hence fails to communicate meaning to their users. As a consequence, they create an environment of confusion, uneasiness and discomfort. A designer's talent should be used as a connection, just like the connection one feels when one hears a piece of music: a connection not to the composer but through the composer to nature. As Jonathan Hale (1994), in his book, *'The Old Way of Seeing'* observed, "*Wright's architecture took off when he learned how not to assert his will but let the design come through him*" (p. 174). A good design can not be drawn but is generated by the requirements, possibilities and constraints provided by the place and the spirits of the place and users (Figure 6.7).

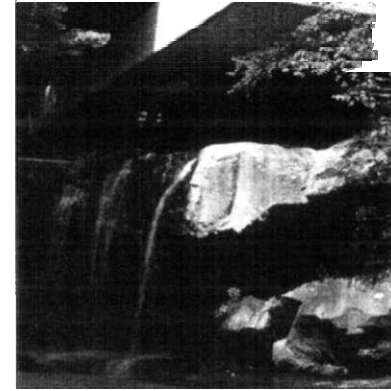


Figure 6.7: Spontaneity in design can only manifest itself in design when designer lets the design flow through the possibilities and constraints of the site.
Source: Pearson, D. (1994). *Earth to spirit*. San Francisco: Chronicle Books, p.77

In the design process, the designer's role is that of an instrument that lets nature reveal its creative process through his or her self. A designer should be able to sense the essence of a built-form, which seeks to manifest itself through particular circumstances, events, functions and so on. He or she should be able to express this essence within a building through his/her designing talent. As in his homage to Louis I. Khan, Jonas Salk (1975) said, "*what, or where, was the source of his inspiration, of his judgement - there will be*

found the creative process of Nature itself (p. 7). An egoistic design is self-imposing, while the expression of one's essence is revealed in the design.

6.3.2 A holistic approach:

Buildings arise from humans' needs, which are: physical - a need for shelter, providing suitable working and living conditions; emotional - a need for a sense of belonging and security; and spiritual - a need for a sacred place for oneself. To respond to these various levels of needs, the architectural process involves sub-conscious and psychic abilities of the designer. The functional and technical requirements of buildings can be fulfilled with mental abilities. The aesthetics of buildings involves both mental and psychic abilities, but the quality, which brings a sense of belonging and meaning into the built-environment, can only be achieved by involving sub conscious and psychic abilities. As architect B.V. Doshi (1991) puts it, *"Architecture is neither a purely physical, a purely intellectual or psychic phenomenon but comprehensive manifestation of all three"* (p. 559). Therefore, it is essential for architects to develop their ability to sense and imagine an environment through their hearts and to strive for intuitive design.

Capra (1991), author of *'The Tao of Physics'* explains how the separation between our physical, mental and psychological abilities has lead us to our present crisis:

"Descartes' famous sentence 'Cogito ergo sum' - 'I think therefore I exist'- has led people to equate their identity with their mind, instead of with their whole organism. As a consequence of the Cartesian division, most individuals are aware of themselves as isolated egos existing 'inside' their bodies. The mind has been separated from the body and given the futile task of controlling it, thus causing an apparent conflict between the

conscious will and the involuntary instincts. This inner fragmentation mirrors our view of the world 'outside', which is seen as a multitude of separate objects and events. This fragmentation in ourselves, in our environment and in our society can be seen as the essential reason for the present series of social, ecological and cultural crisis." (p. 23)

This fragmentation in ourselves has made us to place considerable importance on our mental or intellectual abilities at the expense of the intuitive, while a 'harmonious integration' of both abilities is required in order to achieve a good design. On the contrary, most modern buildings are an agglomeration of windows and doors and cost estimates and program requirements (Hale, 1994). A design problem is considered more like a mental exercise rather than an intuitive one: Can you get thirty people into this space and still meet the code? Do you need handicapped access? Do the light fixtures work? But a good design cannot be achieved by satisfying functional requirements only. A good design should also respond to the users' deeper aspirations, such as a sense of belonging and delightfulness in the built-environment. This can only be generated when the designer puts his/her own feelings into design development. Most masterpieces of architecture that we admire today did not result as the satisfaction of functional requirements, but rather as a deeper satisfaction that was generated by the joyous engagement of the designer in the creative process of design development.

6.3.3 Working with nature:

Nature provides resources for humans to survive, but it also sets the limits on their use. We need to understand that nature is not there to exploit; we should only take what it can give to us, and what is really necessary for our survival. Buildings are necessary for human beings to provide them with shelter and

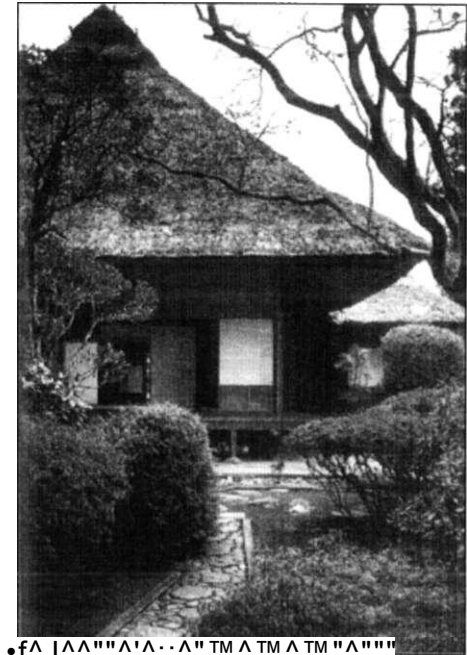
protect them from the extremes of climate. In doing so, the building industry is increasingly becoming a burden on the natural resources through excess consumption. The natural environment is treated as if it is to be exploited by different interest groups. To co-exist with nature we need to learn how we can work with nature to have minimal impacts on its resources. The following are some of the ways, which can help us to work with nature:

- **By building good relationship between the natural and the built-environment.**

Increasing alienation from the natural environment in human societies is an essential cause of our present environmental crisis. This crisis can only be addressed by the symbiosis of nature and humankind. But in

order to achieve a symbiosis of nature and humans we first need to

make our living environment a reflection of our connection and reverence to nature. Japanese architecture provides good example of such connections of built-environment and nature. In the traditional Japanese pattern of life, influenced by Buddhist thought, humankind, their dwellings, and their cities are all regarded as a part of nature (Kurokawa, 1988). As a result, traditional Japanese architecture is characterised by a continuity of the natural environment within built spaces (Figure6.8). There is no sharp separation between interior and exterior, public and private areas. The intermediate zones such as a corridor, a veranda, and



source"Kurokawa, K. (1988).

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Rediscovering Japanese Space. New

York: weatnemiii, p. 52

an alcove, played an important role in providing the spatial continuity and in expressing an intervening territory between different spaces.



Figure 6.9: In cold climate, a sun-space serves as a good link between interior and exterior spaces.

Source: Baggs, J., and Baggs, S. (1996). *The Healthy House*. Sydney: Harper Collins Publishers, p.159

In moderate climates this relationship between natural and built-environment is easier to achieve than cold climates. But features such as, sun spaces, skylights, indoor-plants, and green houses in colder regions can play an important role in strengthening the relationship between the natural and the built-environment (Figure 6.9).

With the environmental crisis, it has become imperative for us to care about natural resources and to be aware of carrying capacity of a region before building in it. We should know how much it takes nature to generate the material we are using for building. However, limitations do not necessarily mean separation from natural environment. For example, a proposal was put forth by Paul Shepard in 1973 (as cited in Sessions, 1998), that the interiors of continents and islands be allowed to return to the wild by building cities in narrow ribbon along the edges of continent. This proposal discourages the encroachment of the built environment and humans' activities on natural environment but it also leads humans towards alienation with nature. Our own environment should provide opportunities for engagement with nature so we become part of it and not separate from nature.

- **By following nature as model:**

Every natural phenomenon and element is self-sustaining through nature's cycles such as the nitrogen cycle, oxygen cycle, food chain and so on. In nature there is no linear motion but rather circular motion where everything returns to its source. Both the construction and operation of buildings should carefully follow this closed loop system of nature. Architect, William McDonough (1993) has put the importance of following nature's course in building design as following:

If we understand that design leads to the manifestation of human intention, and if what we make with our hands is to be sacred and honour the earth that gives us life, then the things we make must not only rise from the ground but return to it, soil to soil, water to water. So everything that is received from the earth can be freely given back without causing harm to any living system. This is ecology. This is good design, (p. 3)

For the building industry to become self-sustaining, requires a consciousness that whatever is consumed for construction and operation of a building, returns to its source. Naturally, this approach will lead to the use of organic materials, optimisation of natural lighting in indoors, optimum use of renewable energy in building operations, an increase in building life span, and the reuse and recycling of building materials.

- **By employing a simple and direct approach:**

Following simple and natural ways of doing things is another approach for working with nature. Today technology has expanded our choices in building design; we can have rooms without windows, building materials from a foreign land, artificial ventilation, etc. Some of these choices can turn out to be expensive as they sometimes disregard nature's boundaries and hence sustainable future. Doing what is natural is always a more sensible and sustainable way. For instance, allowing sunlight in each room of a building

would not only reduce the amount of energy required but also it would provide a better living and working atmosphere. Using local material for building construction reduces cost and energy consumed for transportation as well as creates a building enclosure that fits better with its surroundings than a building constructed of foreign building materials.

6.3.4 Examining the objectives and intentions of design:

In the design process, it is very important how design objectives are formulated. Is the objective to provide a living room, which can accommodate an entertainment unit, couch, coffee table, etc? Or to create a space, where one can relax and spend some time with one's family? The former objective leads to a monotonous and boring design but the latter one motivates the designer to be more creative and innovative.

Furthermore, a spiritual approach to a design will lead us to frame objectives with different perspective. For example, on a lake front site, a building can be designed to make the best use of view, but a different approach will look at how a building can merge with its surroundings, enhance the spirit of place and complement to the beauty of the location, while satisfying

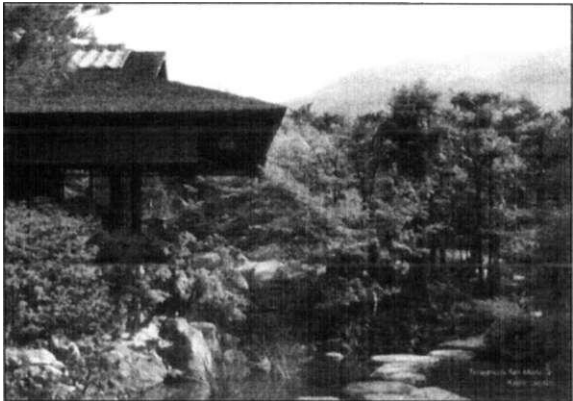


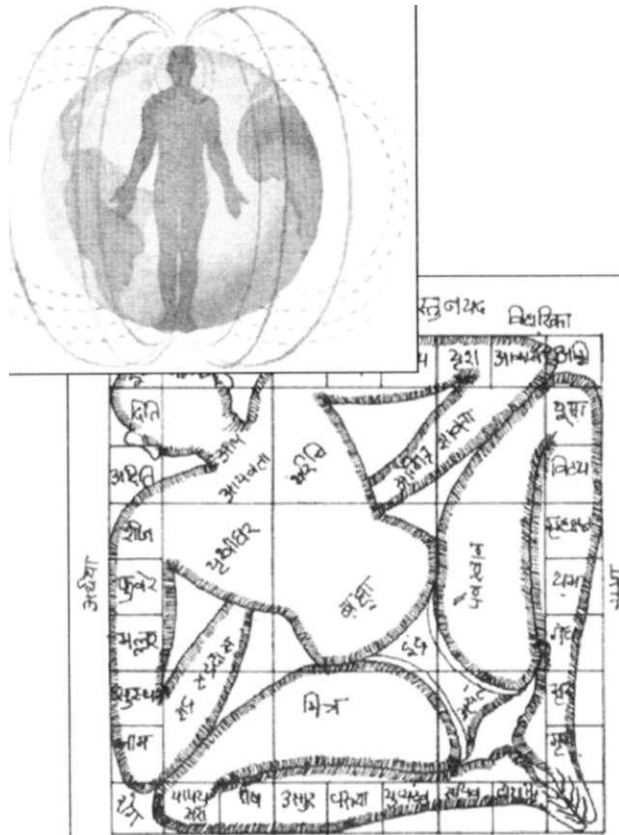
Figure 6.10: The interconnection between a house and garden in Kyoto clearly depicts that the

the users' needs. But to frame such objectives, the designer and builder first need to clarify their intentions of making a building, as it is the intentions that are at the heart of the design process.

Jjjjj objectives..... residents with
 ^ J ! ^ g ^ f ^ T ^ M

A building conveys the same feelings and intentions that go into the making of it (Bender, 2000b). Therefore, if a building is to support values such as love, sharing, and caring for nature, the intentions of its maker and designer should be same. Today, in most cases, the primary goal of builder or contractor is to make money through a building project and other considerations are of less importance. Buildings are made not for people, but for consumers, not to nurture and support life but to generate capital. Often, the result is the use of fancy materials and equipment to attract consumers and lack of concern of real design issues and substance in the building industry. This attitude has given rise to many buildings that are empty of feeling and spirit. For the built-environment to be in harmony with nature, and users' aspirations, it is imperative that designers and builders have clear intentions of doing so.

Chapter 7: Traditional Building Methods based on Spiritual Beliefs



7.1 Introduction

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7.4.7 Reflections

7.1 Introduction

The term, 'Sacred Architecture' is often associated with religious buildings such as churches and temples. However, in many cultures, where the sacred was an essential part of life, spiritual beliefs were transferred to domestic and institutional architecture as well. Two of such building techniques are *Vaastu Shastra* of India and *Feng-shui* of China. This Chapter discusses some theories and principles of these building methods and their relevance to contemporary architecture.

7.1.1 Life-force Energy as the basis of the existence

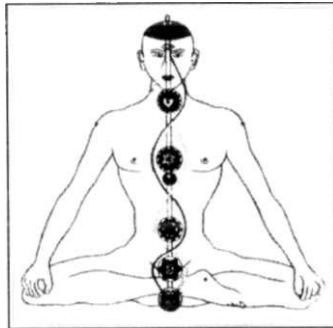


Figure 7.1: Seven energy centres or chakras in human body.

Source: Bender, T. (2000a).
Building with the breath of Life.
Manzanita: Fire River Press.

Both Vaastu Shastra and Feng-shui, acknowledge a subtle form of "energy" as the underlying force of creation and have developed their principles on the basis of this form of existence. Many ancient cultures across the world (Appendix A) also recognise this essential energy of life as vital essence, vital breath, health aura, prana, chi, serpent current, anima mundi, light-ethernic force (Baggs and Baggs, 1996). This Subtle form of energy will be referred as life-force energy in further discussion.

Today, modern science is also revealing the presence of a type of energy field around a matter. Capra (1991) in his book, '*The Tao of Physics*' explains how modern physics is unfolding the existence of dynamic patterns of energy behind matter, a fact known to many ancient cultures:

Quantum theory has shown that particles in an atom are not isolated grains of matter, but are probability patterns, interconnections in an inseparable cosmic web... When we observe them, we never see any substance; what we observe are dynamic patterns continually changing into one another - a continuous dance of energy... These dynamic patterns or 'energy bundles' form the stable nuclear, atomic and molecular structures and give these structures a macroscopic solid aspect. At the macroscopic level, this notion of substance is useful approximation, but at the atomic level it no longer makes sense, (p. 203)

Einstein's relativity theory also tells us that mass is nothing but a form of energy. Energy cannot only take the various forms such as heat energy, kinetic energy, gravitational energy, electrical energy, chemical energy and so on, known in classical physics, but can also be locked up in the mass of an object (Capra, 1991). Einstein's famous equation, $E=mc^2$, expresses mathematically the existence of energy behind matter.

In the 1950s, a Russian technician, Dr. Semyon Kirlian and his wife, Valentina, claimed to have captured this life-force energy on light-sensitive paper (Figure 7.2) and named this phenomenon as 'Kirlian photography'¹² (as cited in Baggs and Baggs, 1996). Many researches have revealed healing methods, based on flow of life-force



Figure 7.2: Kirlian photographs of a Japanese maple leaf, taken with an auragraph camera. (Photograph: Graydon H. Rixon)
Source: Baggs, J., and Baggs, S. (1996). The Healthy House. Sydney: Harper Collins Publishers.p.98

Kirlian photography involves illumination of an object with a high frequency alternating current and transferring of the charge through a metal plate attached to a Polaroid film camera base. Through the action of high frequency fields, electrons are emitted from the body of the object and this energy is dissipated into a photographic emulsion. Different colours or shadings appear in a brilliant corona surrounding the object, depending upon the type of film used. The Kirlian Imagery also suffices to show that some type of field effects prevails between living organisms.

energy in human body, such as acupuncture, reikhi, and qi gong to be successful (as cited in Bender, 2000a). Both sciences of Vaastu Shastra and Feng-shui are based on the unobstructed flow of this subtle energy. They believe that the movement of this energy through a building affects the psychological, mental and physical health of occupants, and hence their quality of life.

7.2 Feng-Shui: A Chinese Concept of Building

Feng-shui is the traditional basis of the Chinese art of building design. Literally, *Feng* means 'wind' that one cannot comprehend or see but can feel and *Shui* means 'water' that one cannot grasp but can see. In essence, *Feng-shui* refers to the blending of the tangible and intangible. It believes that everything in the universe, whether organic or inorganic has life. It has been practised for centuries dating back to the Qin Dynasty (circa 221 BC) when it was only meant to serve the royal families to ensure their well-being (Venketesh, 1999). Its central aim is to ensure that buildings are in harmony with their surroundings.

7.2.1 The Taoist Philosophy

Feng-Shui has its basis in the philosophy of Taoism (Venketesh, 1999). The observation of nature and the discovery of nature's way or order, called Tao'are primary concerns in Taoism (Capra, 1991). According to Taoism, *Tao* (the natural order) is the ultimate and indefinable reality in which all animated and inanimate things are involved. To act spontaneously and according to one's true nature by trusting one's intuitive knowledge is essential in order to live in harmony with the Tao'and find true happiness. So we do not need to force ourselves or anything around us, but merely need to adapt our actions to the movements

of the *Tao*. As Taoist sage, Huai Nan Tzu said, "*those who follow the natural order flow in the current of the Tao*" (as cited in Capra, 1991, p.117).

The principal characteristic of the *Tao* is the cyclic nature of its ceaseless motion and change. As the originator of Taoism, Lao Tzu said: "*Returning is the motion of the Tao*" (as cited in Capra, 1991, p. 105). This idea of cyclic patterns in the motion of the *Tao* or nature's order was given a definite structure by the introduction of the polar opposites - *yin and yang*. Everything is considered as a manifestation of the *Tao*' through the dynamic interplay of these two polar forces. *Yin* and *yang* represent complementary opposites where *yin* is passive quality and *yang* is active (Chuen, 1996). This concept is represented by a motif where the outer circle symbolises the totality of all existence, *yang* is white segment of the circle and *yin* is



Figure 7.3: Symbolic representation of *yin* and *yang*.

Source: Venketesh, R. (1999). *Interior Decoration with Vastu and Feng Shui*. Chennai: The Avenue Press, p.16

black (Figure 7.3). The opposite forces of *yin* and *yang* are considered to be so finely balanced and interdependent that their movement is represented in the diagram by a figure resembling two fish gliding together in water. In the centre of both segments, there are small circles: a seed of *yin* within the abundance of *yang* and the origin of *yang* within the fullness of *yin*. So when one of the opposites gets in excess, the other one takes birth within the abundance of the previous. In this way, endlessly, *yin* and *yang* give birth to each other (Chuen, 1996). Seasonal changes and phenomena of growth and decay in nature are the clearest expression of the interplay between *yin* and *yang*.

Yin - yang theory is a model of the constant process of change. In this sense, *yin* and *yang* merely mark two points at any one moment in the transformation. Nothing is fundamentally *yin* or *yang* in itself but is a constantly changing combination of both (Chuen, 1996).

In Feng-Shui, the concept of *yin* and *yang* is used to achieve a desired quality of space. A dynamic balance of *yin* and *yang* is required in an environment - sometimes more *yin*, sometimes more *yang*, as mood and function dictate (Venketesh, 1999). For example, a bedroom should be cosy, nurturing, stable and still. So ambience in bedroom should be more *yin* than *yang*. Use of low and soft lighting, muted or dark colours, silky and velvety fabrics with curved patterns and low height furniture will add *yin* quality in the environment. Offices need to be *yang* - stimulating and active. So use of bright lights, hard and shiny surfaces, bright colours, and large-scale furniture is desirable in office space. Similarly a residential building needs to have more *yin* characteristic than a commercial or industrial building. However, an excess of one quality is undesirable, as too much '*yin*' creates dullness and depression, and too much '*yang*' creates hyper activity and restlessness in the environment.

7.2.1 The Concept of Chi'

The life-force energy, discussed earlier in the chapter is known as '*chi*' in China. *Chi* played an important role in almost every Chinese school of natural philosophy. In the human body, "the pathways of *chi*' are the basis of traditional Chinese medicine. The aim of acupuncture is to stimulate the flow of *chi* through these channels. The flow of *chi* is also the basis of the flowing movements of *Tai Chi Chaun*, the Taoist dance of the warrior (Bender, 2000a). The Christian missionary, Ernest J. Eitel, who

introduced Feng-shui to the western world in 1873, explained the Chinese belief in chi as central to the existence: *"they see a golden chain of spiritual life running through every form of existence and binding together, as in one living body, everything that subsists in heaven above or earth below"* (as cited in Mitchell & Wu, 1994, p.24). So *chi* is seen as an underlying connecting force among all the elements of nature.

A continuous flow of *chi* is considered imperative for the interplay between the two opposite forces of *yin* and *yang*, which maintains equilibrium within nature. Locating favourable sites for buildings and cities based on flows and varying concentrations of *chi* in the earth, and improving the flow of *chi* inside buildings is the goal of *Feng-Shui*. *The wind (feng) is believed to carry and disperse chi, while water (shui) contains it.* Thus the optimum site for a building is one where the wind has been controlled as a gentle breeze and the building is contained by the curved shape of a water body (Venketesh, 1999). Rapid movement or stagnation of *chi* is undesirable, as *chi* gets transmuted to *sha* that is negative energy. As the tenets of Feng-Shui consider that everything in the world interacts on the basis of flow of *chi*, any human-made object should enhance and support the *chi* of the natural environment from which it in turn receives the *chi*. The placement of a building in relation to site features such as trees, water bodies, other buildings and land formations; the number of openings in a space and their relative positions; and the shape and scale of the structure are supposed to affect the flow of *chi*.



Figure 7.4: Acupuncture meridians, in Chinese traditional medical science, are the paths for movement of chi in human body.

source: Bender, T. (200a). *Building with the Breath of Life* Manzanita: Fire River Press, D.18

Fire energy shook upward.
 This is the peak of energy cycle.
 Summer and phase of the full moon
 represents fire energy.

Wood symbolises energy
 that expands in all directions.
 This is the phase of cycle in
 which things emerge and grow.
 It is the power to give birth,
 the power of spring.

Water's energy descends.
 This is the phase in the
 cycle at which things reach
 their point of maximum rest
 and concentration.

Earth energy moves
 horizontally around its own
 axis, affecting the period
 of change between the seasons.

Metal, being the most
 dense of all energy forms is
 produced by the inward
 movement of energy. It has a
 condensing, coagulating quality.

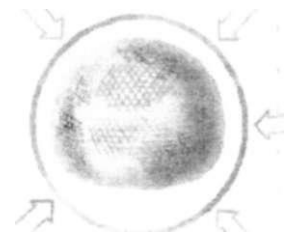
Figure 7.5: The five basic elements corresponding to the five types of movement of 'Chi' energy.
 Source: Adapted from Chuen, Master L.M. (1996). *Feng-Shui Handbook*. New York: Henry Holt and Company, P.33

7.2.3 The Five Elements:

There are five fundamental directions of movement of 'chi' energy: outward, inward, rising, descending, and rotating (Chuen, 1996). These five movements of the energy are symbolised by five elements: fire, earth, metal, water, and wood. All these vibrations interact with each other in cyclical patterns (Figure 7.5). This cycle can be clearly noticed in rotation of the seasons: energy associated with wood expands outward in the spring, giving rise to the upward power of energy, i.e. fire, in summer. It begins to condense in the fall represented by the inward energy of metal and sink downward in winter, symbolised by the energy patterns in water. The

horizontal rotating force of earth energy is the constant force of transition between two phases of energy movement. Nature is seen as a delicate balance of all types of energy constantly interacting with each other in a continuous cycle of creation. To maintain the intricate balance of the five types of energy is one

of the most important aspects of Feng-Shui (Figure 7.6). Following are the various qualities associated with each of these five energies as Feng-shui Master Chuen (1996) suggests:



A round structures with reflective and bright surface symbolise Metal element.



Curving, horizontal shapes with dark-coloured materials express Water element.



Triangular or conical shapes with brilliant red shades are associated with Fire element.



Rectangular shapes and shades of green denote the Wood energy in a building.

Square shapes and warm tones of yellow and brown represent **Earth** element

Figure 7.6: Different types of structures representing different elements.
Source: Adapted from Chuen, Master L.M. (1996). *Feng-Shui Handbook*. New York: Henry Holt and Company, p. 36

Wood: Wood represents creativity, growth, nourishment, change, hope and happiness. Buildings that have strong rectangular shape express wood energy. This element is good for office and commercial buildings.

Earth: Low square buildings represent the earth element. The characteristics of the earth element are stability, protection, reliability and peace. This element is best suited for houses and school buildings.

Fire: A triangular shape denotes the inspiring and exciting upward rush of fire energy. Fire is an element of understanding, inspiration, motivation, courtesy, and ceremony. Amongst

buildings, church steeples and pyramids are representative of this element.

Metal: Metal's virtues are ethics, communication, and precise thinking. Round structures, such as water towers or geodesic domes, domed roofs, observatories, and reflective buildings represent the metal element.

Water: Water is associated with communication, relaxation, wisdom and mystery. A structure that has a curving or indented horizontal shape is expressive of the fluid and constantly changing aspect of Water energy. This element is beneficial in living rooms and offices.

A building may represent one of the elements as its main characteristic but the presence of all the elements is necessary in order to experience peace and harmony in an environment.

All notions and matter whether: directions, products, colours or shapes can be classified under the five elements - water, earth, wood, fire or earth. These elements when interacting with each other result in negative, positive or neutral happenings. All these have a bearing on occupants. So a design based on Feng-Shui is sensitive to proportion of different elements, their location in built-space and site features such as trees, water bodies and land-formations (Figure 7.7). To create harmony between users and the environment, it is essential to take into account their energy type, as individuals also represent one of the elements.

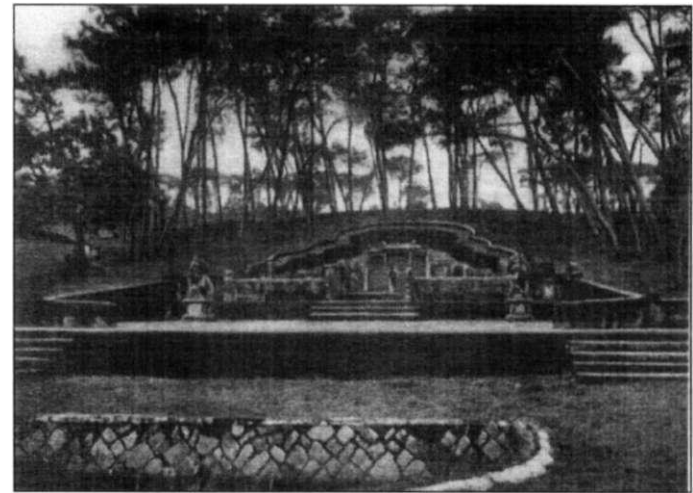


Figure 7.7: A Chinese tomb, a perfect example of Feng-Shui, set into the south side of a hill, protected on the north by trees, on the east west by protective lions and having an open terrace and water body to the south.

Source: Bender, T. (2000b). *Silence, Song and Shadows*. Manzanita: Fire River Press, p.26

7.2.4 Feng-Shui in the present context:

The art of Feng-Shui has emerged from a deep understanding of the universe. It is based on the Taoist philosophy that human beings are a small part of the grand scheme of the cosmos and that all things in the cosmos are connected to each other in an endless dance of balance and harmony (Venketesh, 1999). If one component in this dance goes off balance, everything else is affected. Feng-Shui believes that the balance or disharmony present in our living environment affects us all. It provides guidelines to create a harmonious, peaceful and healthy living environment. However, more so than rules and regulations, it is about feeling instinctively in harmony with ourselves, with each other, and with our environment.

Feng-Shui can be viewed as a language of intuitions. Feng-Shui practitioners call what we might refer to as the 'feel' of a space - good or bad, as the Feng-Shui of the space. It provides an understanding of what makes a space appealing or repellent to us; why certain spaces create uncomfortable, uneasy, or unwelcome feelings; and why some spaces feel comfortable, peaceful and attuned to one's needs. It recognises the psychological effects of surroundings on the health human beings, their emotions, and relationships. One should be able to experience harmony, peace, joy in one's surroundings so one can be in harmony with oneself, with others and with nature.

Feng-Shui acknowledges the importance of a healthy relationship between human beings and their environment. Contemporary sustainable architecture seeks to reduce the impact of human activities on the earth's resources. On the other hand, it is essential to create spaces that can re-enhance the human

beings' relationship with nature and ensure a good quality of life for its users by adding peace, joy, comfort and tranquillity to their lives.

Architect and Feng-shui practitioner, Tom Bender (2000a) recognises ten principles that systems, such as Feng-shui suggest for the sustainable design practice. Those principles are:

- " 1. Life force energy, or Chi, is the vehicle of all Creation, arising from an origin in the Spirit World.*
- 2. The energy fields of the earth are a source of energy and information to all living matter.*
- 3. The breath of life, or "chi" exists in all people, places, and things, and is vital to their interaction.*
- 4. The astrology of people and places, and the timing of their interaction play an active role in the outcome of those interactions.*
- 5. The health of all Creation is essential to our well - being.*
- 6. Our minds and hearts are an integral and powerful part of our interaction with the world on both sides of our skins, and must be addressed in design and use of place.*
- 7. Our relationships with the past and the future - towards our ancestors and our descendants, what preceded us and what evolves out of our existence - are important to the outcome of interactions with our surroundings.*
- 8. Harmony with our cosmology needs to be integral to the design of our surroundings.*
- 9 Sacredness is central to meaningful lives and an enduring society,*
- 10. Design and use of our surroundings are spiritual paths, based on love and giving." (p. 34)*

These principles may be difficult to grasp as our modern science does not recognise many of them, but these principles have originated from ancient wisdom which was able to sustain a "harmonious balance" between the built environment and natural environment for centuries. Because of the lack of documentation, sometimes it is difficult to understand the underlying meaning behind the principles of these arts, but as science is discovering truths and facts such as associated energy with mass, we can see we are going back to those principles (Bender, 2000a).

We may or may not accept all the beliefs, on which Feng-Shui is based. But we can not deny the deep psychological effects of our surroundings, which sub-consciously change our lives for better or worse, bring us near, or take us away from nature, others and even from our own aspirations.

Feng-Shui is an ancient wisdom based on the observations of nature's course. In Feng-Shui every material, every colour and every component of a building represent some aspect of natural force. So every element of a building should create a harmony and balance among them and the surrounding environment. This approach definitely leads to the use of indigenous materials and climate responsive and contextual design. The right amount of sunlight is essential in indoor settings to ensure good health and the comfort of the occupants.

At the heart of Feng-Shui lies a profound sensitivity to the uniqueness of all things and all moments, and an awareness of the fact that they are constantly changing. Therefore there can be no firm, final answers and no automatic, enduring solutions. Every person, every office, every place is different -

there are some common principles, but no rules (Chuen, 1996). As a result, Feng-Shui principles discourage the contemporary culture of mass production and highly recommend contextual building design that is sensitive to spirit and to the needs of the site and its users and inhabitants.

7.3 Vaastu Shastra: The ancient Indian science of building

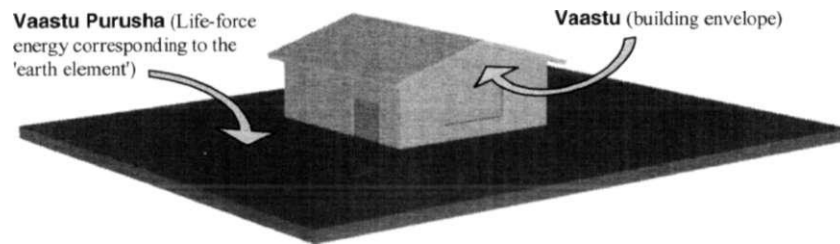


Figure 7.8: Vaastu and Vaastu Purusha.

The main treatise on the traditional building technology of India is called '*Vaastu Shastra*'. It has developed its entire system of building technology upon the fundamental premise that all material objects and forms are manifested as a form of life-force energy or '*Prana*', hence alive and interconnected with each other. Everything in the physical world is considered to be associated with an aspect of life-force energy. The life-force energy that resides in the earth is called '*Vaastu Purusha*'; and a building structure is perceived, as the manifested form of the *Vaastu Purusha* (Figure 7.8). Further, living space or dwelling space is called '*Vaastu*' and the treatise on creating living space is called '*Vaastu Shastra*'.

7.3.1 History of Vaastu Shastra

The knowledge of '*Vaastu*' was a branch of occult knowledge in *Vedic* times (the oldest known period in Indian history). It was handed down orally from father to son. The first written discussion of '*Vaastu*' appears in the *Stapatya Veda*, a part of the *Atharva Veda*, which is estimated to be between 3,000 and

10,000 years old (Ananth, 1998). During the Middle Ages, instructions for building design and construction were laid down and compiled in several manuals. In most cases these manuscripts were incised on palm leaves and kept with other religious texts in Hindu temples. Architectural historians rarely analysed historic buildings in the light of these original palm-leaf manuscripts. In 1920, Stella Kramrisch made the first thorough effort to analyse the Hindu temples with the aid of several manuscripts (Volwahren, 1969). During the decades that followed several manuscripts were discovered. Today there are at least sixteen known texts written in Sanskrit and a host of local texts in different languages (Ananth, 1998). The *Manasara series*, written in the tenth century AD by Rishi Manasara, and the eleventh century Mayamata, written by Mayan, the oldest known architect in Indian history, are the two most important Vaastu texts found to date. The period of their origins also overlaps with the golden age of temple and palace construction in India (Cox, 2000). Vaastu is still widely practised in India, although reasons for this practice vary. Some people practice out of their strong belief in Indian philosophy and some out of the fear that some calamity may happen if the building is not carried out in accordance with the principles of Vaastu.

7.3.2 Philosophies behind Vaastu Shastra:

(A) The Philosophy of Creation:

Vaastu finds its basis in the *Vedic* philosophy of creation, or manifestation (Figure 7.9). According to this philosophy, behind creation there is a state of pure existence or awareness, which has no beginning or end, and no qualities (Morrison, 1995). Within pure existence arises the desire to experience itself, which creates a disturbance and causes the manifestation of life-force energy. This energy is the creative force of action and gives birth to cosmic consciousness, which is a universal order that pervades all life.

Individual intelligence and wisdom is considered to be part of this cosmic consciousness. After following certain steps, cosmic consciousness gives birth to three qualities; *Sattva* -the subjective quality, which is the bridge between individuality and the universal order, and comprises the subtle and mental aspects of a being; *Tamas* - the objective nature which is near to material aspects of life; and *Rajas* - the quality which creates forces of action by combining *Sattva* and *Tamas*. These qualities give birth to the five basic elements, space, air, fire, water and earth. These five element gives birth to all matter in the physical world. So according to the philosophy, matter is a physical manifestation of pure awareness and carries within it various aspects of creation in different combinations (Morrison, 1995).

Vaastu considers that behind the physical form of all matter lies a universal order, i.e. cosmic consciousness; creative force, i.e. Life-force energy; and pure spirit, expressing and experiencing its existence. Vaastu holds that for making any material form or object, we should consider these various levels of creation, as it is not only the physical form but also vibrations and the essence of the object or structure that interact with users and their surroundings. An Indian saint, Sri Aurobindo (1972) has beautifully put this relation of matter and spirit as following:

"The spirit shall look out through matter's gaze

And matter shall reveal the spirit's face."(p. 709)

So Vaastu looks at matter and spirit not as separate entities but as different aspects of the same reality and one at deeper level.

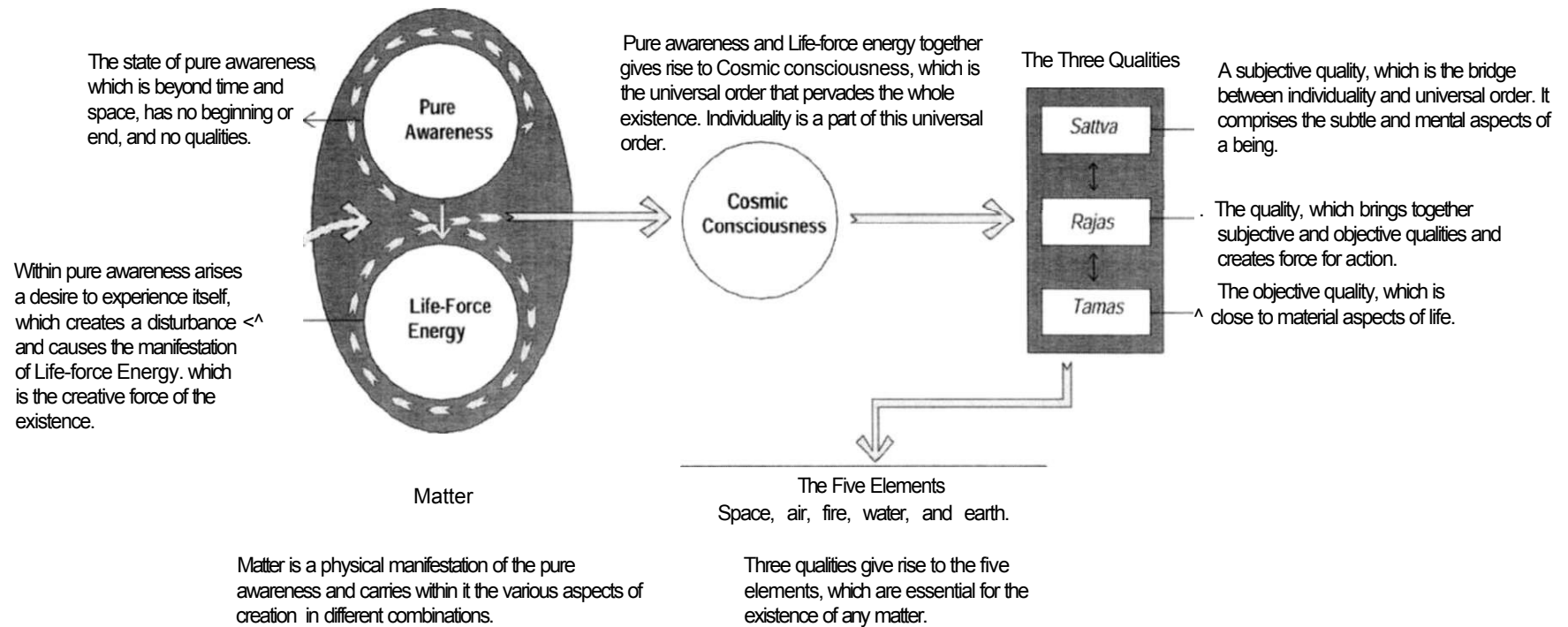


Figure 7.9: Evolution series based on Vedas. A simplified version of different steps in evolution.

Source: Developed from Sankya philosophy found in Morrison, J. H. (1995). *The Book of Ayurveda*. New York: Simon & Schuster Inc., p.18

To fulfil this purpose, the principles of Vaastu were laid out on the following basis:

- **The purpose behind our existence;**

The central point of this philosophy is that the physical world is manifested to experience the pure awareness, spirit, or essence within nature's elements. The purpose of Vaastu is to make built-environment supportive of an experience of the pure spirit.

- **How creation is made;**

Vaastu believes in 'as is the macrocosm so is the microcosm.' Therefore, it sees a building as a small universe in itself, which should be created as the whole creation of the universe is made. As a consequence, it incorporates different steps of creation - the creative force, the universal order, the three qualities, and the five elements, discussed previous in the chapter, within building design.

- **What are the laws of nature, which human should follow in order not to disturb the equilibrium maintained by nature?**

Vaastu believes that interaction among humans, the built-environment and natural surroundings happens not only at physical levels, but also at other levels and that the effect of nature's elements on us and vice-versa is much more deeper than is apparent. Our surroundings effect our physical, mental, psychological and spiritual health and vice-versa is also true. So building design should carefully follow the laws of nature in order to create nature's harmony within the built-environment.

(B) Space, Time and Energy:

Space, time, and energy are perceived as absolutes and existing in their free and unlimited state in Vaastu tradition (Ananth, 1998). All kinds of material objects and manifested forms are created out of the synthesis of space, time, and energy. Building design is seen as a process of integration of these three absolutes by transforming space into form, anchoring time into the present and aligning life-force energy to natural energy flow of human beings with the application of rhythm and order.

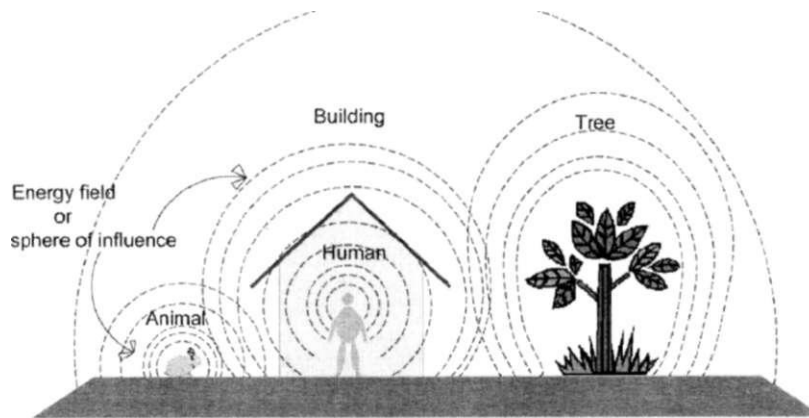


Figure 7.10: 'Vaastu' holds that everything animated or inanimate has an energy field around itself.

Vaastu Shastra holds that every object in this universe contains life-force energy in itself, thus creates an energy field around itself. The sphere of influence of these energy fields varies from object to object, and depends upon its size, material, form, location, and so on (Sthapati, 1998). Every object affects the energy fields of all the other objects, which

come within its sphere of influence (Figure

7.10). Thus, every point in this world has its own unique set of energy fields, which is balanced in its natural state. The moment we build a structure, the enclosed space starts vibrating at particular frequency; and a new energy field is introduced, which affects this balance. The users of the structure and existing environment are, either favourably or adversely, effected by this new set of energy fields. Neutralisation of the adverse effects and increasing the favourable effects in order to provide a healthy, harmonious, and peaceful atmosphere is central to Vaastu Shastra.

Further Vaastu Shastra looks at a building as a living organism that can be designed in harmonic resonance with the underlying energy structure of the universe. Vaastu aims at designing building spaces that vibrate at the same frequency as the residents of a building so that the occupants are able to experience peace, harmony and perfect union with the Universal Self (Sthapati, 1998). To achieve such

results, built-form is evolved on certain proportions that are derived from calculations based on astronomy and cosmology. The principles of Vaastu ensure an unobstructed flow of life-force energy through the building. Vaastu Shastra holds that it is essential to consider certain proportions, scale and spatial configuration of buildings structures for creating rhythm and musical melody in the built-environment and designing buildings that will suit existing environment and their occupants' needs.

(C) The Five Elements

Vaastu Shastra, like Feng-Shui holds that all matter is composed of five basic elements - earth, water, fire, air, and space. These elements do not represent physical materials but rather the subtle qualities that portray the characteristics of every physical form and together, in an infinite variety of proportions, they give birth to all physical existence (Lawlor, 1994). Table 2 shows the principal attributes of the five elements.

Elements	Principal Attributes
Earth	Smell, stability, support, Heaviness, and firmness
Water	Taste, fluidity, translucency, receptivity, coldness and smoothness
Fire	Sight, warmth, radiance, sharpness, and clarity
Air	Touch, mobility, flexibility, lightness, and transparency
Space	Sound, transcendence, openness, expansion, and potentiality

Table 2: The five elements and their principal attributes.



Figure 7.11: The Five elements in the space.
 Source: Baggs, J. , and Baggs, S. (1996). The Healthy House. Sydney: HarperCollins Publishers.p.161

soft touch; its white colour has the quality of space element; adjacent low seating is earth element. The fire element in the room is warmth coming in with sunlight and red colour of the piano.

(D) Vaastu and cosmological order:

In Vaastu tradition, the human dwelling is perceived as small universe in itself, and is designed on the basis of the organising principles of the universe, believed in Vedic philosophy. Building

The interplay of these five elements considered essential for sustaining life and maintaining a near equilibrium on earth. The attributes of these elements are very much associated with our physical, mental and emotional experiences, and hence the experiential quality of a built-environment. The design of a building can be understood as a composition of the five elements. For instance, in Figure 7.11, the free flowing shape of the clay oven is a water element; its texture generates air quality with its

texture generates air quality with its

air quality with its

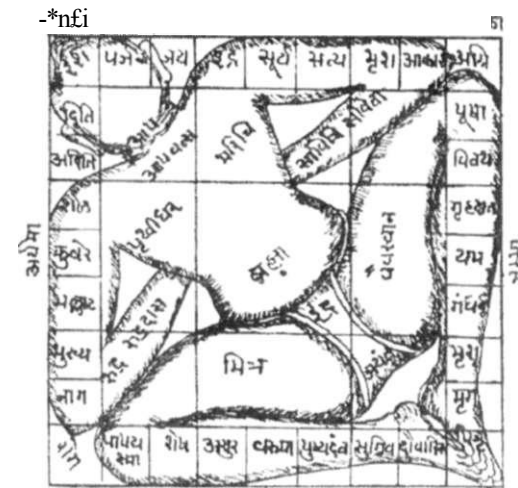


Figure 7.12: Vaastu purusha Mandala.
 Source: Volwahren, A. (1969). Living Architecture: Indian. New York: Grosset & Dunlap, p.44.

layout is derived on the basis of a '*Vaastu Purusha Mandala*', which is a diagram representing the cosmos (Figure 7.12). In the *Vaastu Purusha Mandala*, an outer square represents the earth; a male figure, called *Vaastu Purusha* symbolises life-force energy residing in the earth. Forty-five Gods are considered as constituents of the body of the *Vaastu Purusha*, and allotted a relative position in the *mandala*. According to 'Vaastu Shastra', the mandala can be drawn in 32 ways. The simplest one consist of one square; all others results from the division of this square into 4, 9, 16, 25, 36, 49, 64, 81 and so on upto 1024 small squares (Volwahren, 1969). The smallest square in the mandala acts like module or unit for plan. The size of the module is derived by astrological and astronomical calculations. At the planning level, it regulates the disposition of various buildings, and in architecture it defines the rhythm and proportions of the structure.

Further, different beliefs and theories of Hinduism are superimposed upon the *mandala* layout. Hinduism believes in many gods and goddess, and associates certain directions with certain gods/goddess. The north is attributed to the lord of wealth, south to the lord of death, the east to the lord of light, the west to the lord of winds, the central square symbolises the lord of the cosmos - Brahma (Rao, 1995). The five basic elements, space, air, fire, water and earth have also been given specific location in the *mandala*.

In essence, a universal order is created through the knowledge of different planets, elements and their effects on the earth. Subsequently, an ideal location for a certain function or activity is marked by analysing the suitability of the function according to the attributes and characteristics of different elements, deities or planets presiding in the *mandala* (Figure 7.13). For instance, fire element is given south-east

	North-West AIR	North Holder of wealth and medicine	North-East WATER
- 5	Granary 5 Cow Shed Toilet	Treasury	Entrance and Porch Meditation Room
	Dining Hall Study Room	EARTH Courtyard Lord of the cosmos	Bathroom Storeroom
	Dressing Room Store Room	Bedrooms Toilet	Kitchen
	South-West SPACE	South Lord of death	South-East FIRE

Figure 7.13: Ideal locations for various activities in accordance with 'Vaastu Shastra'.

Source: Modified from Rao, M. (1995). *Vaastu Shilpa Shastra*. Bangalore: S.B.S. Publishers, p.93

to be good for the human bodies because at the time of sunrise sun spectrum does not have harmful rays. So the concept behind locating bath in the east direction was to utilise early morning sun-rays. One should also note that the mandala marks the ideal location of different functions and serves only as a guide to design a house. House plan based on Vaastu is drawn by taking many considerations into account such as, users needs, climate suitability, available building materials

direction, so this location is good for kitchen, fire place, and furnace, as their functions generate heat. The central square that symbolises the lord of cosmos or source of Life-force energy is left open to sky in the layout to receive the energy (Figure 7.14). Here one should note that the location marked for certain activities was done in accordance with the life style and customs of ancient Indian society, so today philosophy of Vaastu should be used by transferring it in accordance with users' lifestyles, beliefs and aspirations. For example in Vaastu Purusha mandala, bathroom is located in the east direction. As bathing was a ritual done during sunrise. It was supposed

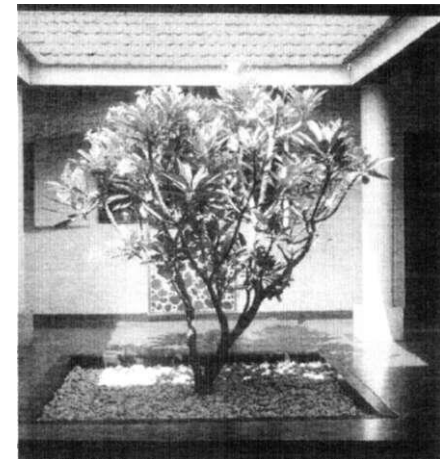


Figure 7.14: Central court, essential feature for Vaastu based buildings symbolises *Brahma*, the creator. It acts as a source of the life-force energy for

source: Correa, C. (1996), *Charles Correa* London: Thames and Hudson, p. 139

and technologies with the ideal locations of functions marked in the mandala.

7.3.3 Vaastu in the present context:

The principles of Vaastu were formulated on the basis of the cosmic influence of the sun, its light and heat, and the direction of wind. These principles resulted in climate responsive, contextual and user friendly design. A central courtyard, proper cross ventilation and proper orientation are the essential features of 'Vaastu' based design, which arise from, and thus are very well suited to the hot-humid climate of India.

Vaastu aims at connecting us with the wholeness of creation by establishing the order and harmony of nature within the built environment. It considers Earth as a living organism, which is very similar to the Gaia theory of today. In the words of an Indian architect K. T. Ravindran:

Basic underlying principles of Vaastu Shastra are very similar to the underlying principles in contemporary concepts of ecology. It is based on inter-relatedness of all things. Not merely physical things but also energy forces. All things in the universe are related and the quality and state of one thing affects another. There is a great poet who said that 'you cannot pluck a flower, without troubling a star. (As cited in School of Planning and Architecture, 1997, p. 35)

Vaastu acknowledges that every building structure is a system that is part of larger system, i.e. the universe. Certain ceremonies and rituals involved in the construction of a house reveal that house was considered as a part of the family and not as a separate entity. But unfortunately, in today's disposable culture houses are not seen as part of us. We have started seeing buildings primarily as devices to be

used - for comfort, effect, and commerce, and have stopped looking at them as an entity in itself, which has meaning in our lives.

Vaastu Shastra speaks of five important processes of design (Ananth, 1998). They are as following:

- eco-sensitivity,
- understanding of the users' requirements,
- understanding of building materials,
- knowledge of aesthetics and
- The comprehension of energy fields.

The first four design requirements are well known in contemporary architecture, but the last one we do not recognise or acknowledge as a design factor. The energy level within an enclosure is very much associated with the experiential quality of a space. This is something that is related to our feelings and intuitive abilities. We can notice that as soon as we enter into a different space, without even observing any of the design elements, we are affected by its ambience at a psychic level, for example we can feel comfortable or uneasy, calm or restless. For instance, the space shown in Figure 7.15 is calm and relaxed while the room shown in Figure 7.16 has a disturbance and uneasiness in the environment in spite of comfortable seating arrangements. Vaastu Shastra maintains that this different experiential quality of spaces is because of different energy levels associated with them. Incorporating a knowledge of energy fields in building design can add a sense of well-being, peace, tranquillity or other desired qualities to the atmosphere.



Figure 7.15: Space has a balanced and good flow of life-force energy that creates a calm and relaxed atmosphere.
 Source: Tettoni, L. I. & Warren, W. (1993). *Thai Style*.
 Bangkok: Asia Books Co. Ltd., p. 190

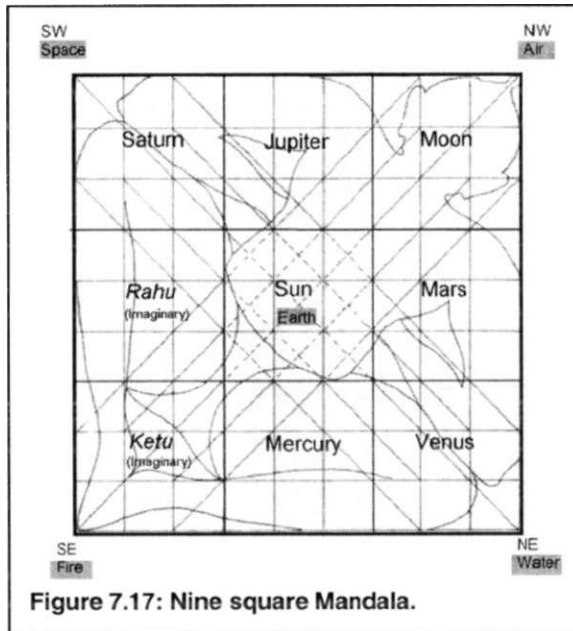
Figure 7.16: Space has tension and disturbance in spite of good furniture arrangement.
 Source: Tettoni, L. I. & Warren, W. (1993). *Thai Style*.
 Bangkok: Asia Books Co. Ltd., p. 195

Today the field of Environmental Design acknowledges the importance of an interdisciplinary approach. Collective efforts by various disciplines are required in order to save the natural environment. However, for the successful integration of different disciplines, we need a common ground or a philosophy on which various disciplines can generate their own guidelines and principles. Ancient India provides an example of such integration where all disciplines including architecture, were connected with each other at the root level. All the traditional disciplines of India emerged from the same premise that human life's essence is to seek connection with the Supreme Being; and to live in harmony with the surrounding

environment and universal forces is essential to achieve such a connection. As a consequence, architecture, art, astrology, astronomy, healing practices, music and other fields were closely inter-linked. For instance, *Ayurveda* (the medical science of ancient India) recognises the importance of the balance of different composition of the human body for a healthy life and also acknowledges the importance of living environment and the effects of celestial forces on human body. Similarly, *Vaastu Shastra* recognises and incorporates knowledge from different disciplines. In essence, it received its conceptual plan from cosmology, module size from astrological calculations, balance of building character from '*triguna*' theory of *Ayurveda* (Indian medical science), rhythm and order from music and dance, aesthetics and composition from art. As a result, *Vaastu* acknowledges the effect of the built-environment on the health of users and the natural environment. It recognises the importance of integrating local climate and local building material in building design, and providing users a sense of their higher-self through linking building layout to the whole cosmos.

7.4 The Case Studies

7.4.1 Jawahar Kaia Kendra: An Example



Jawahar Kala Kendra is a cultural centre for the city of Jaipur in India, designed by architect Charles Correa in 1986. The centre is analogous of the original city plan of Jaipur, which was based on the mandala of nine squares. The nine square mandala represents nine planets, which are considered to effect human-life on earth and play an important role in Indian astrology (Figure 7.17).

Correa's plan (Figure 7.18) for the centre invokes the original nine square mandala of the city plan. Due to the presence of a hill, the south-west square was transported to the east in the city plan. One of the squares in the building is pivoted to recall the city plan and to create an entrance. The central square, as specified in Vaastu Shastra, is a void: representing *Brahma*, lord of cosmos, by nothingness. Other eight squares house activities corresponding to the myths represented by that particular planet. For instance, the director's and administrative offices are located in the house of Mars that represents power in Indian astrology; the library is located in the square of the planet mercury which traditionally represents knowledge; theatres are in the house of Venus, representing the arts and so on. The astrological symbol of each planet is directly marked in a cut out along its external wall (Figure 7.20).

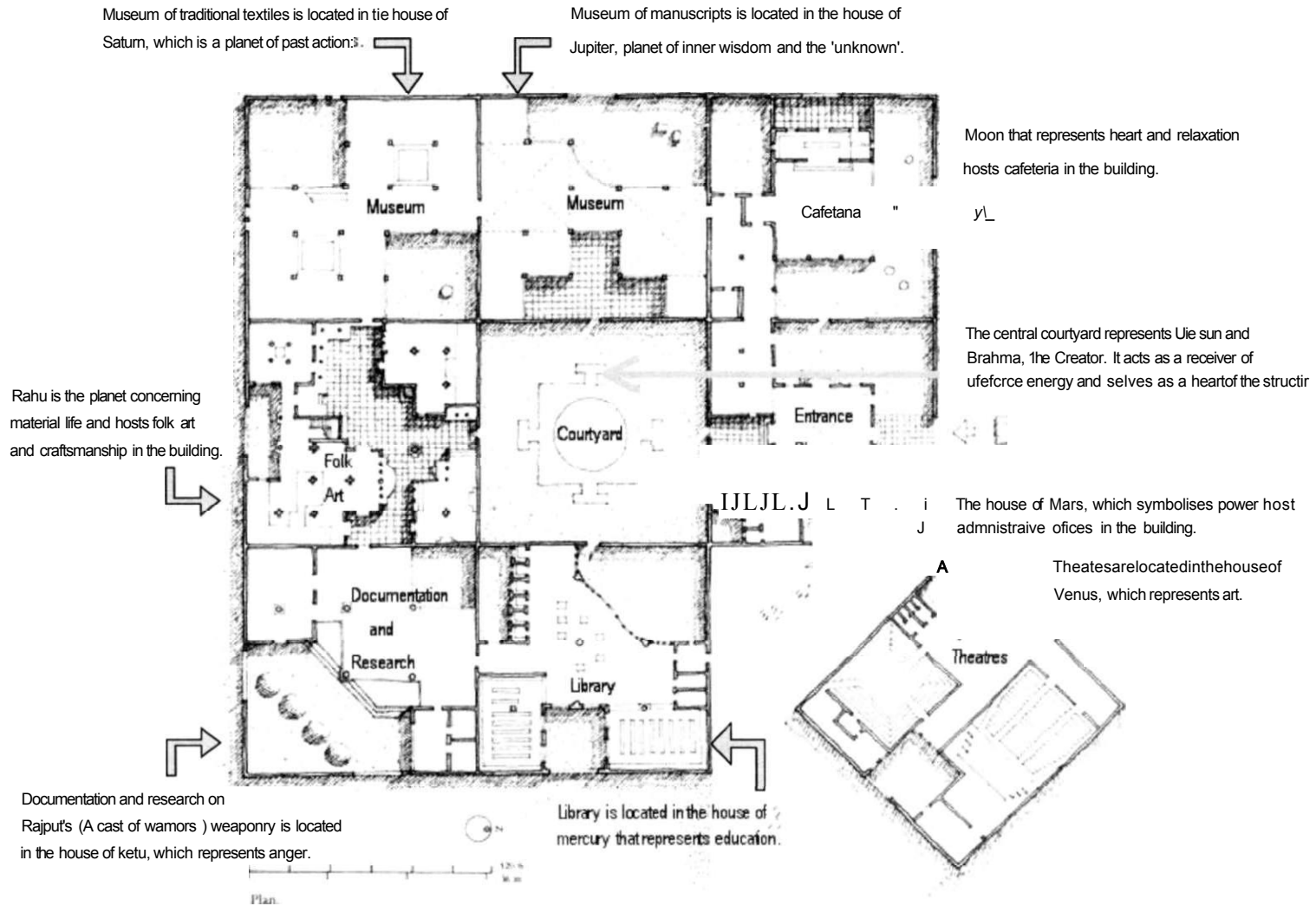


Figure 7.18: Plan for Jawahar Kala Kendra.

Source: Modified from Khan, H. U. (1987). *Charles Correa*. Butterworth Architecture, p.143

7.4.2 A Contextual Design:

Charles Correa has effectively translated the various beliefs of Indian culture into building elements in Jawahar Kala Kendra. The design of the building incorporates socio-cultural traditions in the form of conceptual planning, wall paintings and other decorative elements. Use of local building materials and local arts and crafts (Figure 7.19 and 7.21) in building construction ensured a contextual building that fits with its surroundings. The building is also able to provide a connection with the context of the city by following a similar conceptual



Figure 7.19: Krishna, a Hindu God, painted by traditional Rajasthani artists.
Source: Correa, C, Frampton, K. & Correa H. (1996). *Charles Correa*. London: Tames and Hudson Ltd, p. 229

layout.

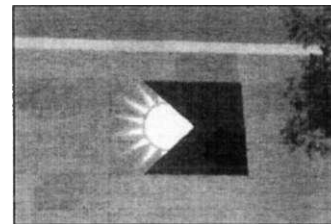


Figure 7.20: The traditional symbol of each planet is inlaid on the exterior walls.
Source: Charles Correa, Kenneth Frampton and Harles Correa, *Charles Correa* (London: Tames and Hudson Ltd, 1996) p. 225

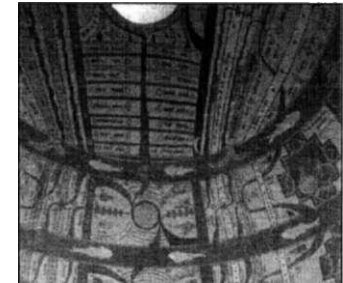


Figure 7.21: A Jain cosmograph, depicting all the rivers, mountains, and vegetation of the manifest world around us, on the ceiling of the dome at the entrance.
Source: Charles Correa, Kenneth Frampton and Harles Correa, *Charles Correa* (London: Tames and Hudson Ltd, 1996) p. 223

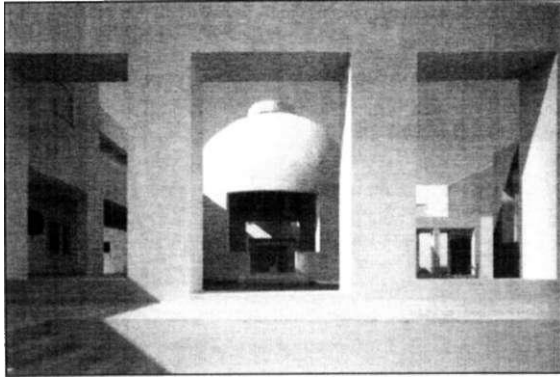


Figure 7.22: The house of Mars with domed roof.
 Source: Charles Correa, Kenneth Frampton and Harles Correa, *Charles Correa* (London: Tames and Hudson Ltd, 1996) p. 222

The Jawahar Kala Kendra is a contemporary building based on an ancient perception of the non-manifest world, as expressed in Vaastu Purusha mandalas. The central courtyard, which is an essential feature of ancient Indian architecture and supposed to be the source of life-force energy, works well in the building plan. It provides a good connection to several functions of the building, and acts as an informal gathering area. The building has a compact square shape that provides efficiency in area usage.

7.4.3 Climate Responsiveness:

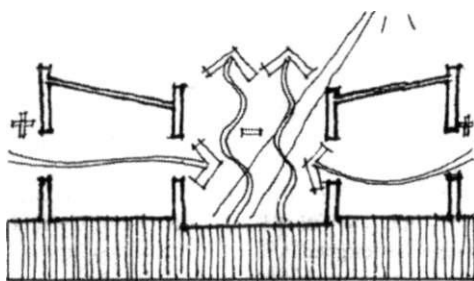


Figure 7.23: Warmer air rises up and draws the cooler air inside the court.
 Source: SPA, 1997, p.93

Jaipur has a long hot and dry summer. The highest day temperature in summer reaches up to 50° C. Nights are comparatively cooler. The thick stone walls, used in the building construction provide 7-8 hours time-lag to allow the outdoor day heat to permeate indoors. The central court of the building suits the hot climate of Jaipur by providing appropriate ventilation. Cooler air is drawn inside the building as warmer air rises up in the court. Yet the building could have been more environmentally

sensitive by adding elements like closed circuit water channels, spray ponds, shrubs, trees, and shading devices to modify the micro-climate of the area.

7.4.4 Conclusions:

The Jawahar Kala Kendra is not a perfect example of a sustainable building, but shows some aspects of sustainability. It indicates how modern architecture can transfer the spiritual beliefs of a society to the built-environment and create strong connections between a building and its users. It also demonstrates how the use of local materials, local art and craftsmanship and local style, creates a building that fits better in the context of a particular site. One of the main causes of environmental deterioration is that people are becoming alienated from their surroundings. This alienation makes them behave as if they are separate from their surroundings and as if they are exempt from responsibility towards it. A contextual built-environment reflecting the profound values and beliefs of a society certainly links people to their surroundings in an effective manner and creates a sense of belonging and a sense of responsibility towards it.

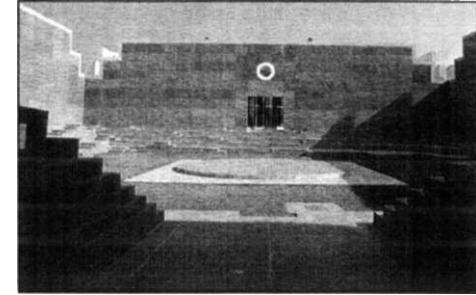


Figure 7.24: The central court in the building.

Source: Charles Correa, Kenneth Frampton
^{a n d H a r l e s} correa, *Charles correa* (London: Tames and Hudson Ltd, 1996) p. 272

7.4.5 A house: A Feng-shui case study

This case study analyses a house that was designed and built by an architect and Feng-shui practitioner, Tom Bender for himself and his family.

A home is one's own space in the world. It should provide a sense of belonging and a sense of security to people who live in there. It should be able to provide the users peace and comfort after a long day. This house is based on the tenets of Feng-shui, and on the conscious effort of the designer to achieve an intuitive design. Its designer, Tom Bender (2000a) states, "*What represents comfort and security to each of us is vastly different, and it is those perceptions that need to be dealt with. Listening to our tummies as to what feels good or bad to us is vital* (p. 197)."

House is located at Neahalem, a small community in the State of Oregon in the United States. It sits on a mountain called, Neahkahnie that means, "place of the gods". At the mountain's foot lie the Pacific Ocean and the Bay of Neahalem River, which provide a beautiful view from the site (Figure 7.25).



Figure 7.25: A beautiful view of Pacific Ocean from the site.
Source: Bender, T. (2000a). *Building with the breath of Life*.
Manzanita: Fire River Press, p.271

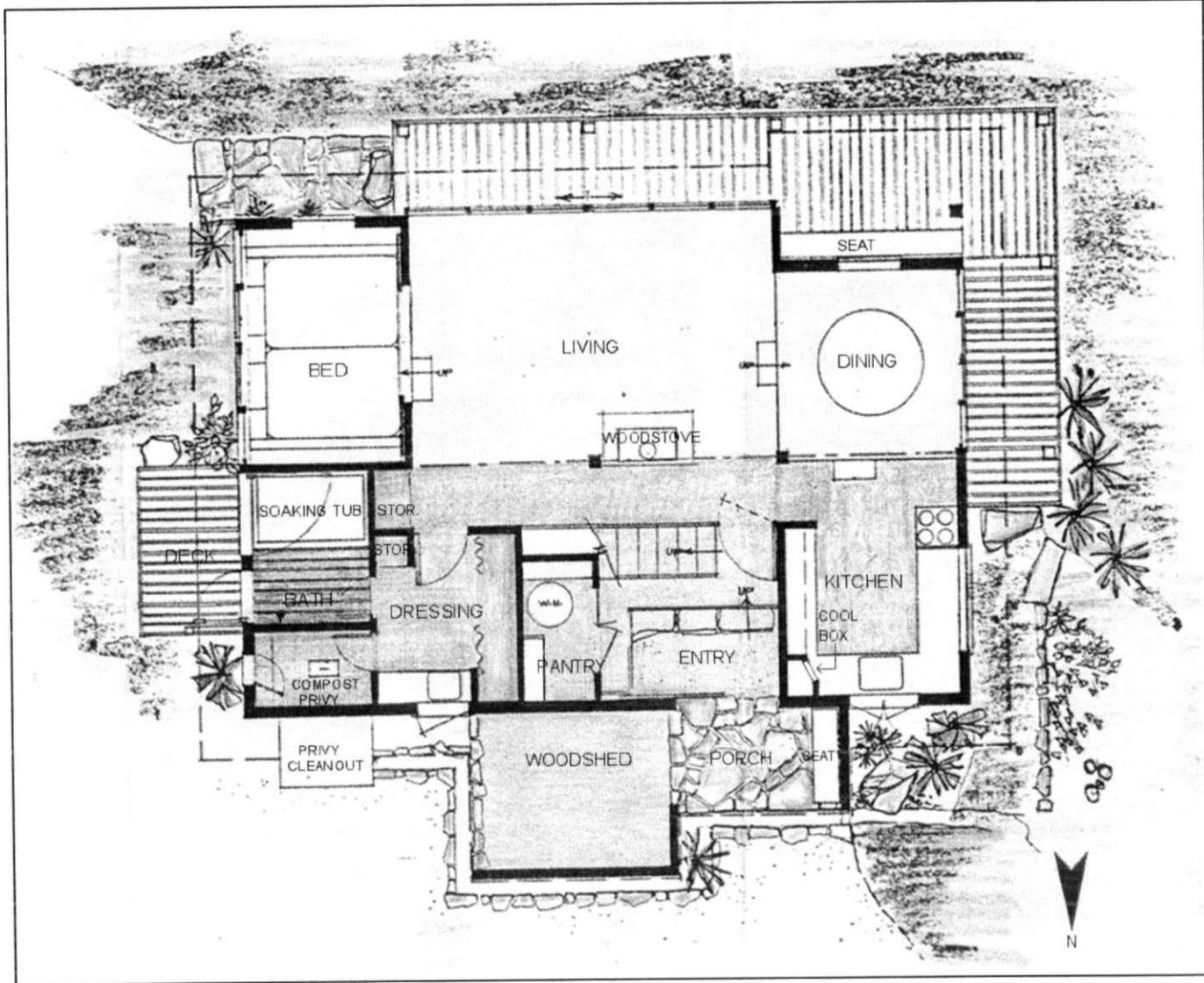


Figure 7.26: Ground floor plan of the house.
 Source: Tom Bender

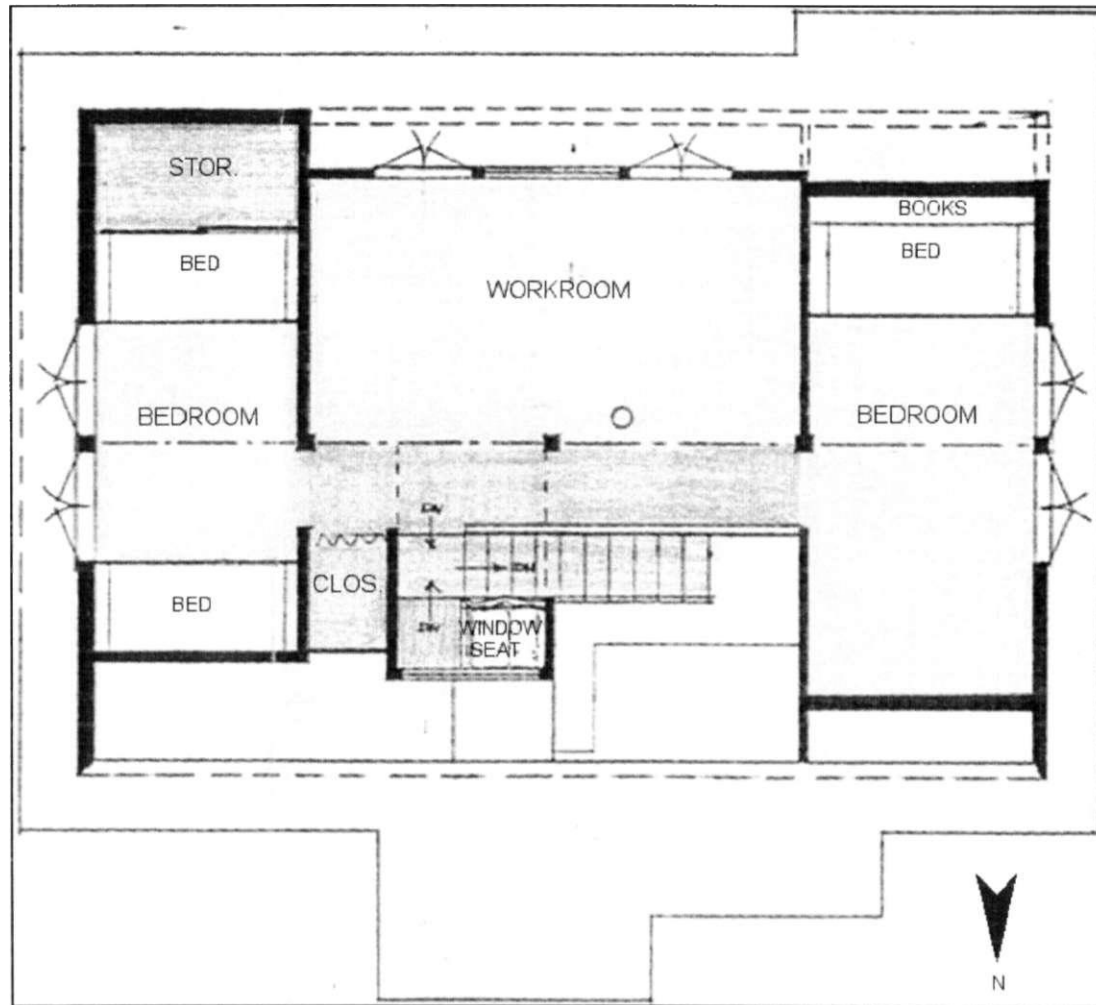


Figure 7.27: Second floor plan of the house.
Source: Tom Bender.

7.4.6 Elements of the house:

The following constitute some of the elements of Tom Bender's house:

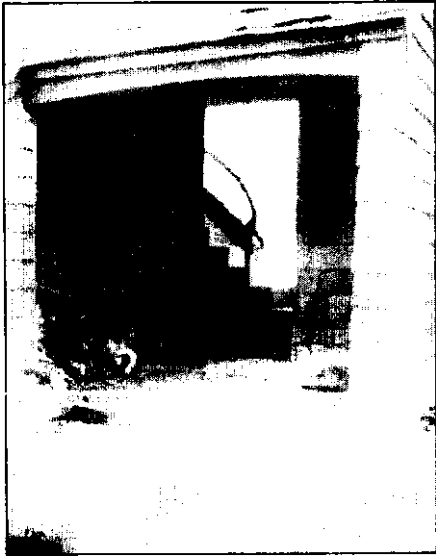


Figure 7.28: Entrance of the house.

source: Bender, T. (200a). *Building with the breath of Life*. Manzanita: Fire

River Press, p.194

Entrance: An entrance is a threshold between one's private space and the rest of the world. Its essential characteristic is to provide the poise and receptivity for the transition between two different spaces. Feng-shui pays lot of attention to the requirements of the entrance to a house, as it is where symbolically chi enters the building (Venketesh, 1999). It requires a clear and well-defined entry; and a separation between interior and exterior for poise and privacy. The entry Porch in this house serves as a buffer between two different spaces. A *shoji* screen provides a visual and thermal separation from the living space while bringing light into the entrance (Figure 7.28). A pantry near the entrance provides

storage for bulk-food purchases. Bender (2000a) put the essence of the entrance this way, "A sheltered porch, a glimpse of warm light pouring

out of the kitchen, smoke from chimney, and a full woodpile easily at hand give assurance of warmth, shelter, food, and companionship" (p.194).

Living/Dining: A living room is a place of family activity where family members get together. It is where family and guests interact when laying the foundation of their relationships. A living room should have a fine balance between the two opposites of yin and yang. It needs to be warm and welcoming, yin in character; and stimulating and active, yang in nature, at the same time. This house has a spacious living

room with a big south-facing opening, which provides a beautiful view of the ocean below. Simple furniture, plenty of sunlight inside, and an abundance of nature outside, invariably connect the family to the richness of nature (Figure 7.29 and 7.30). It creates a contemplative space that helps to connect with oneself.

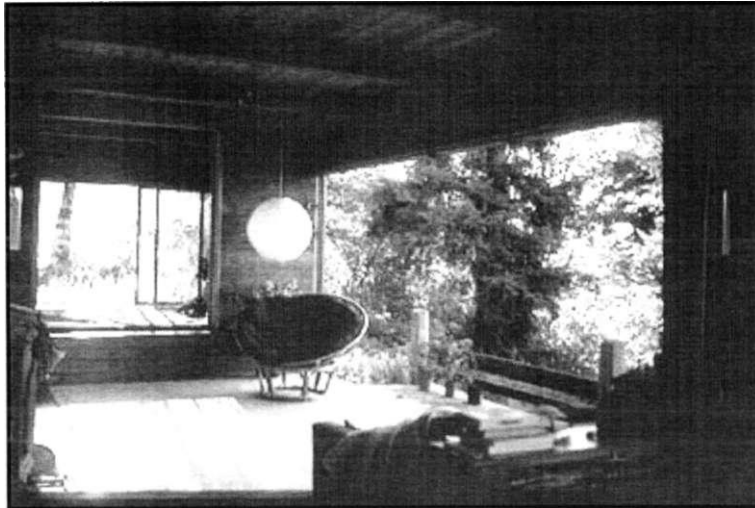


Figure 7.29: The living room provides a contemplative environment.

Source: Bender, T. (2000b). *Silence, Song and Shadows*. Manzanita: Fire River Press, p.101



BedatooB

Figure7.30: A bed alcove in the living room provides an informal gathering place for the family.

Source: Bender, T. (2000b). *Silence, Song and Shadows*. Manzanita: Fire River Press, p.96

Kitchen: A kitchen represents nurture and growth. The kitchen has its own significance in Feng-shui as it is believed that the ambience of room that is used for preparation and serving meals affects the nourishment of the body, mind and spirit. A kitchen has to be well-lit and well ventilated to provide the cook with the right environment for cooking. Plenty of natural light and good spatial arrangement in the kitchen of this house creates a nice ambience for cooking (Figure 7.31).



Figure7.31: The kitchen.

Source: Bender, T. (2000b). *Silence, Song and Shadows*. Manzanita: Fire River Press, p. 115

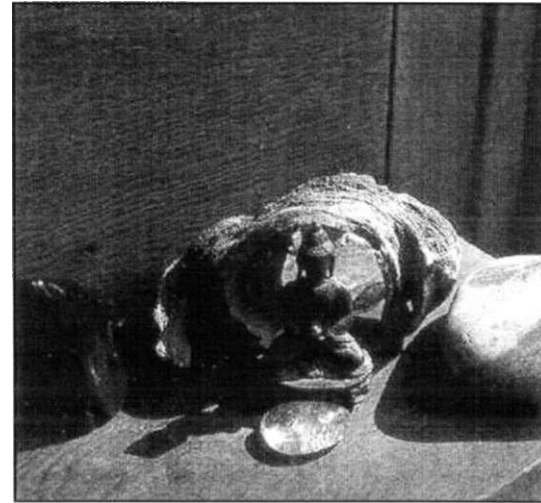


Figure7.32: A bedroom shrine.

Source: Bender, T. (2000b). *Silence, Song and Shadows*. Manzanita: Fire River Press, p. 105

Bedroom: A bedroom's function is essentially that of yin nature that is resting. Feng-shui believes that during sleep we are in the most receptive state and open to the influences from the surroundings at sub-conscious level (Venketesh, 1999). Therefore, it is important how we feel before sleeping and what we see when we wake up. The arrangement and design of the bedroom should be in accord with an individual's

aspirations. A Buddha shrine in one of the bedrooms of this house provides a sacred place to sleep (Figure 7.32).

Bathroom/Toilet: A bathroom next to a bedroom is common feature in North American houses but Feng-shui does not recommend bathrooms to be placed next to bedrooms as it creates a disturbance in the quiet nature of bedrooms. In this house the bathroom is kept away from bedroom. A bath, water closet and wash basin are in separate areas for their efficient use. Instead of mirror, there is a window with a view of the outside garden over the washbasin (Figure 7.33). Mirrors are placed inside of the medicine cabinet door and on the back of the bathroom door. In Tom bender's (2000a) view, a mirror represents illusion and should be avoided and more over "it is delightful to start our day seeing beauty and nature - rather than a mirror image of our packaging" (p. 267).



Figure 7.33: The washbasin has a window with a view to garden.

Source: Bender, T. (2000b). *Silence, Song and Shadows*. Manzanita: Fire River Press, p.99

Building Materials:

The house was built with local and natural building materials: wood, stones, cedar shingles and recycled materials such as recycled chicken coop wood for interior walls, recycled glass for windows, recycled automobile engine blocks for a wood stove. The kitchen counter and desk slabs were salvaged from abandoned wood. The cabinets for the kitchen and the bathroom have curtains instead of wooden panels.

Exposed wood construction significantly reduces the amount of building materials used (T. Bender, personal communication, October15, 2000).

The use of local and natural building materials results in a building that belongs to its site. Exposed building materials reveal a sense of 'truth' and a connection to nature. What is fascinating in this house, is the way some building elements unfold the 'past lives' of the materials used. A twisted piece of driftwood as a handrail on the stairs reveals a profound beauty by its very shape (Figure 7.34). The handle at the entrance door is made from a spruce root squeezed among the pebbles on a beach when growing. Its



Figure7.34: A spruce root found at a beach has been used as a handle for entry door.
Source: Bender, T. (2000b). *Silence, Song and Shadows*. Manzanita: Fire River Press, p.81



Figure7.35: One of the interior doors shows the pattern of larval tunnels.
Source: Bender, T. (2000b). *Silence, Song and Shadows*. Manzanita: Fire River Press.o.76

gnarled shape reflects both the adventures and struggles it has gone through (Figure 7.35). One of the interior doors shows the patterns of larval tunnels in wood, which immediately connects one to the past life of the material (Bender, 2000b).

7.4.7 Reflections:

This house projects not only a set of sustainable building principles but a sustainable way of living. As a building, this house is sensitive to the environment and the context of the site. The house projects its environmental sensitivity through following features:

- **Reduce:** Some of the common features of a north American house have been eliminated in this house, such as house does not have a heating/cooling system; it has a cool box, replacing refrigerator. It minimises energy consumption through solar water heating, the maximisation of indoor sunlight, and the use of energy-saving lighting fixtures (T. Bender, personal communication, October 5, 2000).
- **Reuse:** The house has utilised some of the used building materials and equipment.
- **Recycle:** House has employed a significant amount of recycled building materials and recycled equipment. It has grey water recycling and compost toilet.
- **Climatic responsiveness:** Neahalem's climate is mild. Average daytime temperature in summer is 15-20 degrees c and in winter 5-10 degrees c. It has long but mild winter so insulation has best value. The house is built with R-19 walls and floors and an R-30 roof. Windows have insulating shutters inside. The

house faces due south, with passive solar glazing. Provision of passive heating storage was not made, as the family wanted to live with the house open. All the living spaces get direct sun inside for few hours (T. Bender, personal communication, October!5, 2000).

- **Ecological factors:** The building fits in the ecology of its site very well. All materials used for construction came from within 15 km of the site. Landscaping is done using native plants. Some of the wild flowers that grew, while building was being constructed, were left as they were (Bender, 2000a). The site still acts as a wild corridor for birds, elk, deer, and other fauna.

As a home, the house is sensitive its occupants' physical, psychological and spiritual needs. It provides a warm, comfortable and relaxed environment to live in. It connects the family with its surroundings. It generates a sense of sacredness and a sense of profound beauty. The house's sensitivity to nature and responsiveness to its users' aspirations helps create a sense of interconnectedness between its occupants and nature.

In essence, the house is a sacred place to live in as it is in harmony with its users' profound values. The building's construction carried out in accordance with sustainable building principles. The design of this house grew from the deeper values of the designer and emerged as a fine example of a sustainable building.

Chapter 8: Recommendations



8.1 Sustainability and Spirituality: a Comparison

8.2 Observations

8.2.1 The guidelines

8.2.2 The Sustainable Design Process

8.3 conclusion

8.3.1 Suggestions for Future Research

8.1 Sustainability and Spirituality: A Comparison

This chapter shows the results of incorporating spiritual values in sustainable development. As discussed in previous chapters, the concepts and strategies of contemporary sustainable development are highly associated with the physical concerns such as survival of life, resource conservation, and living conditions. They are also built on moral values such as obligations towards the natural environment and future generations and a sense of responsibility for our actions. However, they are weak to evoke an urge for care for nature, aspirations for a better future and a search for a meaningful life. They lack involvement with our emotions and sentiments, which are crucial for changing our attitudes and life-styles in accordance with sustainable principles. Spirituality, being very close to our aspirations, emotions and purpose of life can help to fill this gap found in the current concepts and strategies of sustainable development. The following table compares goals, concerns, tools, values, and indicators associated with sustainable development and spirituality and generates a term 'sustainable order', by incorporating positive points from both sustainable and spiritual concepts:

	Sustainable Development	+	Spirituality	=	The Sustainable Order
What is it?	<i>"The development that meets the needs of the present without compromising the ability of the</i>		Spirituality is getting to the essence of existence through connecting oneself to one's		The process, which can make us aware of our role in the existence so that we don't

	<i>future generations to meet their own needs"</i> ¹	spirit.	disturb the self-existing and self-sustaining nature of creation.
Goal	Resource conservation and protection of the natural environment	Self-realisation/self-discovery	To bring the harmony and order of nature within our lives and living environment.
Why do we need it?	The existence of life on the earth is in danger.	Life has intrinsic meaning and purpose.	The fragmentation within us is creating a disturbance in nature's order.
Concerns	Survival of life forms, quality of life, the relationship between humans and the rest of the nature.	Release from suffering such as violence, fear, sadness; relationship between oneself and God/higher-self.	The survival of life and its meaning. Relationship with ourselves, others and the rest of the nature.
How can we achieve this?	Education, regulations, policies, incentives, and strategies for environmental conservation.	Living in peace through introspection, nature-observation and meditation.	Introspection of our role as individuals and as humans; education, policies, and strategies.
Tools			
Values	As every living being has an equal right to life, the notion of sustainability supports social equity, justice, and freedom.	Contentment, goodwill, universal love, peace, compassion and so on.	Respect for nature as it is sacred; Peace, equity, justice and freedom based on mutual respect and caring; Contentment through living a meaningful life.
Drawbacks	Does not effectively change	It can lack in connection with	

¹ WCED public hearing in Ottawa, May 26-27, 1986.

	people's attitude and life-styles.	material life and hence may not be able to transfer spiritual values to social values and systems.	
Who is involved?	Associations, social and political groups, institutes	Individuals, associations, religious groups,	Individuals, associations, social, political and religious groups, Institutes
Drawbacks	Presently, sustainable development lacks individual involvement. The majority of the population can not perceive the global effect of an individual's actions. It does not make people feel responsible for their actions.	Sustainable development requires a common ground of agreement in order to work towards a sustainable future. Spiritual beliefs are often very specific to a person or a group and can only find a common basis when sought through heart and soul. Sometimes when spiritual beliefs are adopted rather than generated through heart, the common ground among several beliefs gets missed. This may result in a lack of consensus required to bring about the required social change.	
Indicators	The state of natural environment, consumption rate of resources, living and working conditions, physical and mental fitness of people, income gap, and so on.	One's approach and attitude towards life and work are indicators of one's spiritual state.	Life-style of people, peace and goodwill among people, societies and nations, meaningful work for everybody and so on.

Table 3: The general factors of Sustainability, spirituality, and the required sustainable order.

The successful implementation of sustainability requires goals, concerns, approaches, and indicators that encompass the physical, moral, and emotional aspects of life. The term, sustainable order, introduced in Table 3, is seen as a synthesis of our physical, moral and emotional/spiritual concerns, which are required to be taken care of in order to reach a sustainable future. Table 4 graphically shows how concepts of sustainability and spirituality can fill each other's gaps and provide the required 'sustainable order'. It indicates the degree of association that various factors of sustainability and spirituality have with the physical, moral and emotional/spiritual aspects of life and how integration of sustainability and spirituality can deliver the 'sustainable order' which encompasses physical, moral and emotional/spiritual considerations.

Different Levels		Physical	Moral	Emotional/Spiritual
Goal	Sustainability	●	●	●
	Spirituality	●	●	●
Concerns	Sustainability	●	●	●
	Spirituality	●	●	●
Approach	Sustainability	●	●	●
	Spirituality	●	●	●
Indicators	Sustainability	●	●	●
	Spirituality	●	●	●
The Sustainable Order		●	●	●

- Most associated
- Associated
- Least associated

Table 4: By filling the gaps of each-other, the concepts of sustainability and spirituality can together provide the required sustainable order.

8.2 Observations

8.2.1 The Guidelines

We have to take a multidimensional and multifaceted approach towards achieving a sustainable future. Today, efforts focused upon the pursuit of sustainability tend to be paralysed or neutralised by conflicting trends of our social, political and economic systems. For instance, efforts of sustainable technologies, ecological design, conservation policies, and environmental management get neutralised by increasing population, tourism, consumerism-based society and excessive use of materials in marketing. We need a simultaneous change in our life-styles, attitudes, and policies so that each can support and monitor others to achieve a sustainable future (Figure 8.1).

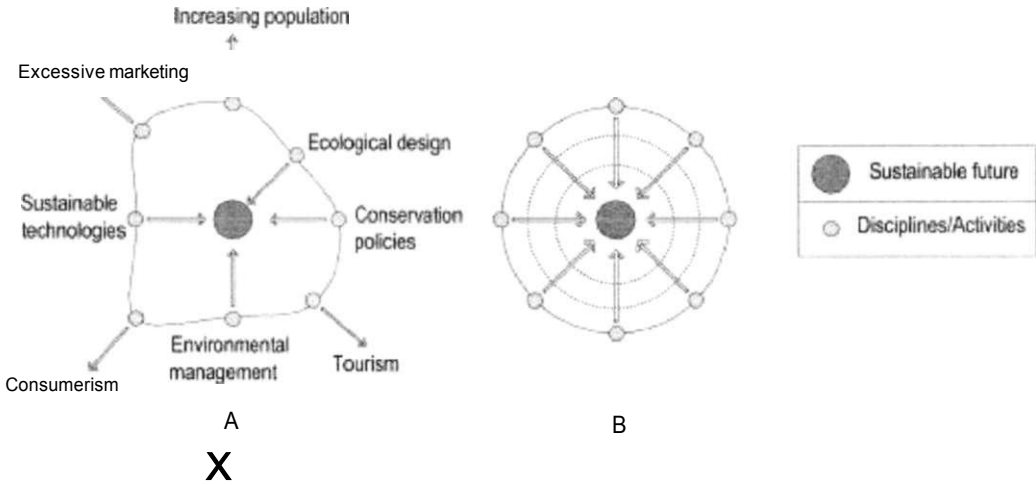


Figure 8.1: We need a multidimensional and simultaneous approach towards sustainable approach.

To frame a multidimensional and simultaneous approach, we need a common basis on which various disciplines can generate an effective and collective effort towards a sustainable future. This MDP suggests that incorporating a spiritual basis in contemporary sustainable development can provide various disciplines with a common ground to draw guidelines for sustainable development. Following are the guidelines, which are derived through the intervention of spiritual values within the realm of sustainable development, to form the required common basis:

- **Balance is fundamental to the very existence of the universe.**

Nature is self-existing and it continues to be so by maintaining a dynamic balance among its various elements. Today, human activities are threatening our very existence by creating an imbalance in nature. Sustainability requires every human endeavour to support the equilibrium maintained by nature.

- a Nature follows a certain order and harmony.**

Everything that exists in the natural world follows an innate order and harmony. Every natural phenomenon and element has its own worth and intrinsic value and these work together in perfect harmony with each other in order to make the whole of creation function. Human activities should not intrude into the natural order and harmony, which sustains life on the earth.

- **All existence is interconnected at deeper level.**

Spiritual philosophies hold that everything that exists in our physical world is manifestation of one creative force. Hence all elements in creation are interconnected at different levels - physical, psychological, and spiritual; and affect each other by their presence and actions. At a physical level, different cycles such as oxygen, nitrogen, and the food chain are the proof of this interconnection. At a psychological level, we can perceive this connection by observing the effect of different seasons and surroundings on our feelings. At a spiritual level, we can get a sense of interconnectedness and oneness with rest of nature by simply observing and meditating on it. This interconnection among all the elements of creation creates a web of life where every thread is connected to each of the other threads at different levels. This intricacy in creation necessitates a many-sided and manifold approach towards a sustainable future. This implies that our actions, thoughts, values and feelings should be in harmony with rest of creation.

- **The root of the crisis lies in our materialistic and consumeristic attitude and hence these attitudes should be changed.**

The depletion of resources, deforestation, and environmental degradation are not only the result of an increasing population, but also are due to an increasing consumeristic attitude within our societies. Unless we as individuals, communities, industries and nations change our attitude and learn to differentiate between need and greed, we cannot hope for good living conditions for future generations.

- **Upholding the purpose and intrinsic value of life should be central to sustainable development.**

The purpose and intrinsic value of life is integral to the existence of life on our planet. Hence, sustainability should aim at enhancing the 'purpose' and 'beauty' of life with the aim of ensuring survival of life on the earth. Today, realisation and establishment of the intrinsic value of life in our societies has become essential to change our attitudes towards the natural environment.

- **Sustainable development should seek a 'harmonious blend' of the material and spiritual aspects of life.**

According to spiritual philosophies, matter is meant to be a true expression of spirit, and hence, they are one at a deeper level. Today, an emphasis on material over spiritual values in our societies has created a separation between matter and spirit; our material life and spiritual life; and material needs and spiritual needs. The spiritual aspect of life should find true expression in physical aspect of life. For instance, our spiritual needs involve finding delight in living, and we should be able to find that delight within our homes, our surroundings and our work.

At present, the primary concerns of sustainable development tend to be the material aspects of existence, rather than the spiritual, but unless we take care of spiritual aspects of our lives along with the physical, and create harmony between matter and spirit within ourselves and our surroundings, we cannot achieve good living conditions.

8.2.2 The Sustainable Design Process

The intervention of the guidelines, outlined in previous section in the design process, demands a holistic approach to building design. We are asked to acknowledge certain factors, such as our deeper connection to nature, necessity to maintain and respect the self-sustaining nature of creation, and the importance of a built-environment that supports and reflects the meaning and purpose of life.

In order for building design to emerge from the order and harmony of nature, designers first need to realise that everything that exists in creation has a number of levels of existence such as the physical, energy/vital, and the spiritual. These various levels together allow the whole being to exist. A holistic design should emerge from the attributes of each of these levels of the designer so that it can interact with different levels within us and create a sense of deeper satisfaction and joy. When we observe a sense of disconnection within us and in our living environment, this implies that we are not serving our deeper desires and needs. Neglecting these deeper aspirations in building design results not only in dead spaces, which create alienation within us, but also a built-environment that disconnect us with nature.

Figure 8.2 shows a holistic design process that takes care of the different steps of building design by incorporating the various levels of our being.

Point 'A' relates to the spirit and true nature of our being, wherein lies the potential and the inspiration for a design. This point corresponds closely with the Tao' - the 'Way' of Lao Tzu, and the pure awareness of Hindu philosophy discussed in previous chapter. The realisation of the 'true nature' of a building through intuition

provides a designer with a sense of deeper harmony, which connects the building and nature's order. This latter results in harmony between the built-environment and nature.

This sense of inner order and harmony helps the designer to realise the essence of a built form - point 'B'. This point forms the meaning and essential characteristics of a built-form.

Using one's rational or mental being, one should transfer the essence of built-form to conceptual existence of a building - point 'C'. Here one should be able to make connections between tools and philosophy; between the immutable and circumstantial; between immeasurable and measurable; and between spirit and matter.

Then follows the physical existence of building - point 'D' through using our physical ability and available technologies. When experiencing the building generated through such a process, one should be able to sense and feel the spirit of the built-environment - point 'A' - the beginning of the design process. A connection to the beginning of the built-form also creates a sense of connection and contentment within us. Creating such a built-environment, which connects us with ourselves, invariably connects us with nature, as at deeper level we are part of nature and not separate from it.

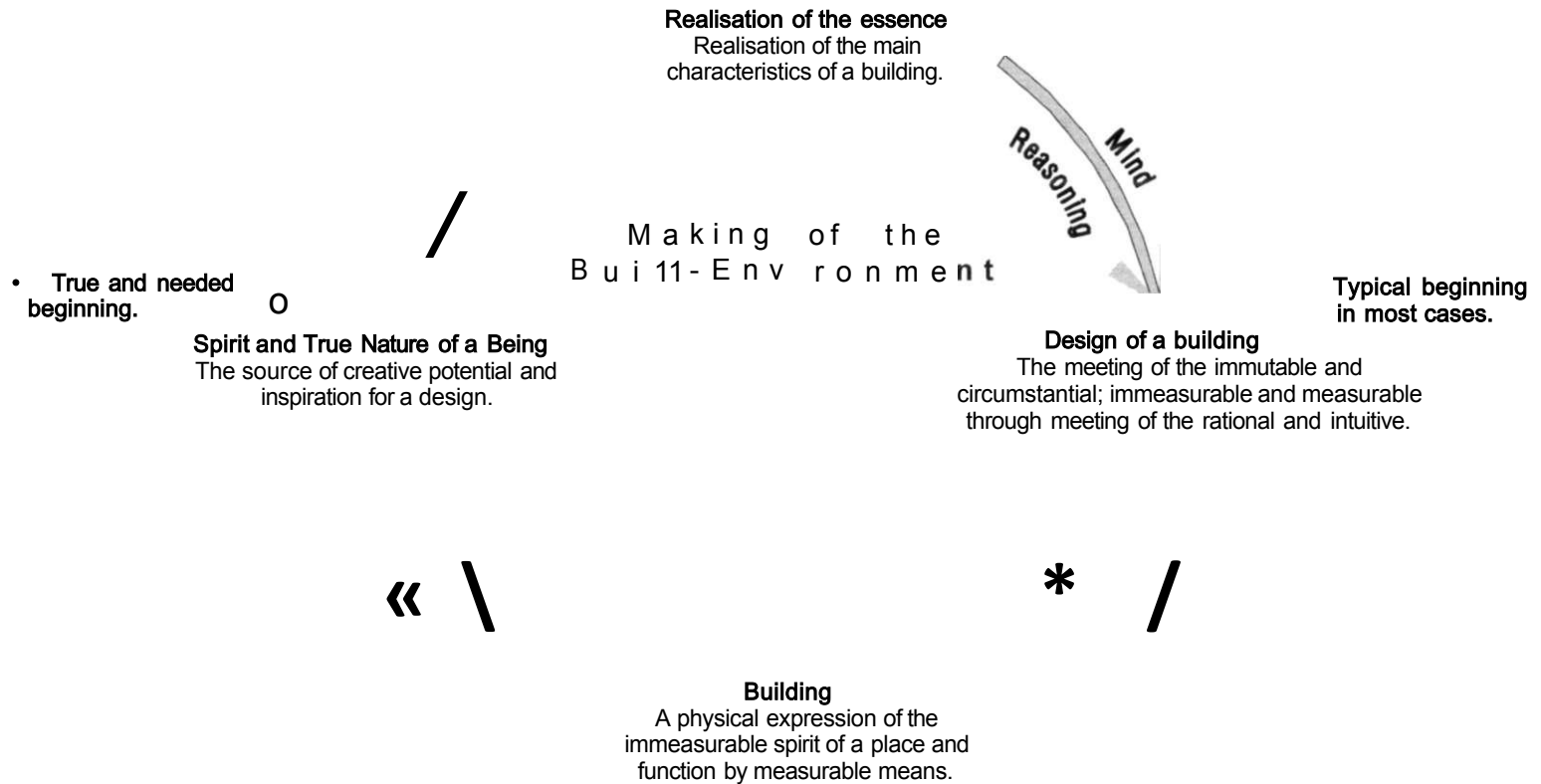


Figure 8.2: Various steps in making of the built-environment.

Most modern buildings ignore points 'A' and 'B' of the design process, and invariably fail to provide connections to our deeper selves. Often, the result is a feeling of emptiness and uneasiness within the built-environment. Rarely, contemporary building design seeks to project the true nature of a building, which connects it with nature's order, and hence fails to build good relationships with nature. Incorporating a spiritual

basis in sustainable development, as this MDP suggests, should help with the realisation and establishment of the concepts, which are essential in pursuit of a sustainable future.

8.3 Conclusion

Sustainable principles are gaining acceptance in the sectors of planning, architecture, industrial design, management and education. However, the self-centredness and mixed intentions of the majority of us becomes a barrier for effective implementation of them. Increasing environmental deterioration necessitates that we look deeper within ourselves in order to find the causes of our present environmental situation. This MDP suggests, the real cause of the present scenario can be traced to a focus on materialistic wants over and above of intrinsic value and meaning in life. This materialistic attitude generates a conflict between the goals of sustainable development; and the social, political and economic tendencies within our society. The MDP sees a balanced approach between the material and spiritual aspects of life as an essential part of the realisation of a sustainable future.

It is envisioned that the guidelines developed in this MDP could be used as a basis to frame an approach towards a sustainable future in different fields such as, architecture, planning, industrial design, environmental education and management, to generate a collective effort towards a sustainable future. The sustainable design process presented in the MDP can assist to layout a conceptual base for a building design.

8.3.1 Suggestions for Future Research

This MDP provides a basis for acknowledging and incorporating spiritual values as an integral part of sustainable development. Further research can be carried out which examines the ways of implementation of sustainable development that employs a spiritual base. The set of guidelines given in MDP can be further developed to suit a specific field or scenario. Research can be carried out relating to the implementation of these guidelines within the various contexts of sustainable development.

The sustainable design process provided in this MDP is developed taking architectural considerations into account. Similar processes can also be developed for use in other fields.

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Glossary

Ayurveda: An ancient system of Indian medicine.

Brahma: The creator of all living forms and all universal phenomenon, according to Hinduism.

Chi: Life-force energy, the basis of existence.

Feng-Shui: Feng means wind and Shui, water. Feng-shui is traditional Chinese art of placement ensuring that all things are in harmony with surrounding natural and man-made elements.

Five elements: Many cultures believe that all matter is composed of a set of basic elements. In Chinese culture, the five elements are metal, wood, water, fire and earth. Ether, air, fire, water, and earth are considered as the five basic elements in East Indian tradition.

Indra: The god of thunder and lightning in Hinduism.

Jainism: A religion practiced in India.

Tao: The natural order.

Triguna: Three characteristics.

Mandala: A mystic diagram that represents the cosmos.

Upanishad: Theological texts of Hinduism

Vaastu purusha: God of land

Vaastu purusha mandala: The mystic diagram of a site with the Vaastu purusha contained within a grid.

Vaastu Shastra: A treatise pertaining to the built form.

Vedas: There are four major scriptural texts of Hinduism. They are Rigveda, Samaveda, Yajurveda and Atharvaveda. The Vedas are over 5000 years old, and who wrote them is not available in the records of Hindu Religions.

Yin and Yang: The negative and positive principles in nature. Yin refers to feminine qualities: the moon, night, valley, etc. Yang refers to masculine qualities: the sun, day, hill, etc.

Vedic: Related to the Vedas.

Appendix: Life-force Energy in World Cultures

Source: Bender, T. *Building with the breath of Life*. Manzanita: Fire River Press, pp.14-15

Name	Culture/Nation/Person		
Africa		Itz, K'awil, Ch'ul, Ch'ulel	Maya
Ntoro	Ashanti	Gana	Incan
Ntu	Bantu		
Mulungu	Central African (Yaos and Ghana)	Asia	
Mungo	Central African (Sudanese)	CM, Qi	China
Elima	Congo	Ki, Reiki	Japan
Njom	Ekoi	Kundalini, Prana	India
Ayik	Elgonyi	Kundalini, Prana	Khmer
Wong	Gold Coast	Badi, Mana	Malaya
Megbe	Ituri Pygmies	Eckankar	Pali
N/um, Rlun	Kalahari Bushman	Lungta	Tibetan
Ngai	Masai	Tinh	Vietnam
Oh	Yoruba		
America (N.)		Australia	
Manitou	Algonquin	Arunquiltha, Churinga,	Aborigines
Dige	Apache	Kurunba	
Hullo	Chickasaw	Zogo	Torres Strait Tribes
Maxpe	Crow		
Ton	Dakota	Europe	
Sila	Inuit	Holy Spirit	Christians
Orenda, Oki	Iroquois, Huron	Wouivre, Nwyure	Druid
Digin	Navaho	Elan Vital	Early Europe
Wakonda	Omaha, Sioux	Ether	Early Europe
Po-Wa-Ha	Pueblo	Illiaster	1500's Europe
Wakan	Sioux	Facultas Formatrix	Galen, Johannes Kepler
		Wodan	German
		Dynamis	Greek
		Entelecheia	Greek (from Aristotle)
		Pneuma	Greek (from Galen)
		Telesma	Greek (from Hermes)
		Vis Medicatrix Naturae	Greek (from Hippocrates)
America (S.)			
Axe	Candomble		
Huaca	Incan, Peruvian		

Nous
Vital Fluid
Numen
Spirare

Mid-East

Napishtu
Anima Mundi
Ka, Hike, Ankh
Ruach
El, Manna
Yesod
Baraka
Shiimti

Greek (from Plato)
Medival Alchemists
Roman
Roman

Akkadian
Avicenna (Arabic)
Egyptian
Hebrews
Israel
Jewish Kabbalah
Moroccan, Persian, Sufi
Sumerian

Pacific

Labuni
Tane
Kerei
Anut
Andriamanitra
Atua
Aka
Kasinge, Kalit
Huna
Mana
Ani, Han
Tondi
Yaris
Miwi

Gelaria (N. Guinea)
Hawaii
Indonesia
Kusaie
Malagasy (Philippines)
Maoris
Mauli
Palau
Polynesian
Polynesian/Hawaiian
Ponape
Sumatra, Bataks
Tobi
Yaralde of the Lower Murray