

Nature Conservation + Spirituality = Sustainability

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Introduction

One of the sad effects of progress is destruction of environment and with it nature. Large-scale deforestation, pollution of air, introduction of toxic chemicals in rivers and oceans and general march of our present technological progress is depleting biodiversity. American heritage dictionary defines nature as “The order, disposition and essence of all entities composing the physical universe” or in essence the biosphere. Some critics of environmental movements contend that if some living species do get annihilated due to our activities still we are part of nature. They also contend that our technological march is an evolutionary process, which automatically allows reduction of biodiversity. Their argument may carry weightage if our technological progress is environmentally sustainable but at present we do not understand all the natural forces surrounding us and hence we are not working in tune with them. Eventually we may, but till that time we need to conserve nature and biodiversity. Hence we should be concerned about nature’s destruction for if we destroy nature we will lose valuable genetic information and with that a possible mechanism to evolve efficiently and sustainably.

How Nature Helps Us

Nature provides us direct benefits and without it we will not be able to survive. Majority of medicines presently in use and all our foods are derived from plants and animals. The cost of over-the-counter drugs from plants alone has been estimated to be about US\$ 84 billion worldwide¹. Yet a tiny fraction of biodiversity has been utilized in the allopathic medicines. Similarly in 1997 an international team of economists and environmental scientists came out with a figure of US\$ 33 trillion for all ecosystem services provided by natural systems to humanity free of charge. This amount was more than twice the total GDP of the world². Ecosystem services include regulation of the atmosphere and climate; purification and retention of fresh water; formation and enrichment of soil; nutrient cycling; detoxification and recirculation of waste; pollination of crops and the production of lumber, fodder and biomass fuel. Even if by magic we get the necessary technology and this much

money to provide these services, the physical task will be nearly impossible to accomplish it thereby proving the superiority of natural systems over manmade ones.

Besides providing ecosystem utilities, nature also provides us knowledge for our future science and technology. Nature had billions of years of head start and hence it has evolved through infinite permutations and combinations of designs. Since our brains are a product of natural evolution and earth time, it can be conjectured that we cannot think more than what already exists in nature. Thus the fastest way for us to progress is to copy nature. For if we destroy nature we will be robbed of the design template for our further development.

There are large number of examples where we have benefited from copying nature. Presently the new mantra in the design world is to mimic nature. Thus better fluid dynamic foils by mimicking dolphin swimming; better insulation by studying polar bear's fur; better design of helicopter by observing bumble bee flying and better light bulb by understanding the firefly luminescence etc. are among innumerable examples that are being researched all over the world. In fact there is hardly any modern invention which does not have its counterpart in nature. Sometimes we do not have the necessary tools to probe nature to find out how it works and thus foolishly think that we have superior technology.

Our ability to feed the world will also come from copying the natural genetic manipulation of the species. Thus the modern tools of biotechnology and genetic engineering will be used in producing higher yielding crops which use minimum of inputs of chemical fertilizers and pesticides. Our ability to mimic the natural process at molecular levels (nanotechnology is a prime example) has just started and we are still scratching the surface. Out of 10 to 100 million species on this planet earth we have only discovered about 1.5 to 1.8 million¹. Just to duplicate the complexity of biological life and interactions of organisms will take millions of years to perfect. Hence the best thing we can do is to copy the natural designs, live in harmony with nature and evolve with it.

Since we have evolved with other life forms our brains are wired to enjoy the beauty of nature. No manmade systems can compete with the joy and well being we feel in observing the infinite variations of nature's display year round. There are large number of studies all over the world which have shown that subjects recover rapidly from physical stress when they are exposed to pleasing natural environmental conditions¹.

Similarly walking in forest under a thick tree cover is a very pleasing and emotionally satisfying experience. Besides it appears that trees might act as antennas for Universal Thought. Gautam Buddha got his enlightenment under a Banyan tree and so did the great Indian sage Ramkrishna who used to meditate at night under a similar tree. The forest cover provides balm to our eyes, green lung to our planet and inspiration to our soul. This could

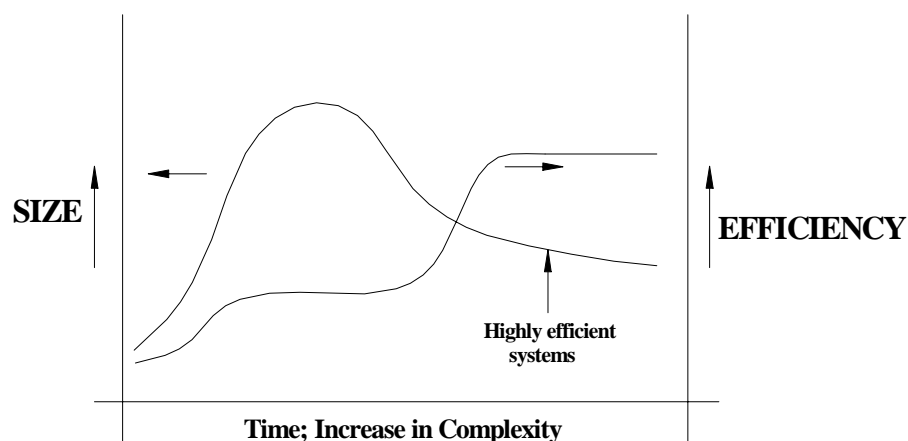
have been the basis of sacred groves around temples. Thus nature is very important for our emotional and intellectual evolution and well being.

Conservation of Nature for Sustainable Living

Yet the fact remains that we are destroying nature with our wasteful lifestyles and our burgeoning population. We use natural resources very inefficiently since we want to change things rapidly possibly within our lifetimes. Because of our technological superiority we are changing the natural tapestry, have started playing God, and have this arrogance to change everything in one lifetime. Besides we still do not understand the complexity and beautiful designs of the natural systems. As we evolve in our science and technologies we will understand nature's wonders and may become more tuned to it. Thus rather than exploiting resources like oil and gas which took millions of years to produce we will produce innovative renewable energy technologies with cycle times of 10-15 years. This may include fuel cells powered by liquid fuels from biomass; efficient biomass based power systems, solar and wind energy units³. Research world over does point towards this strategy.

Our present lifestyle is untenable. Estimates are that, at present level of technology, for all the world's population to have wasteful lifestyle of U.S. will require about 4 more planet earth¹. Obviously it has to change so that it becomes sustainable and more emotionally rewarding.

The new lifestyle can be based on decentralized development. A hallmark of evolution of a system is its size reduction; increase in its complexity; increased efficiency of materials and energy transfer through it; and dynamic equilibrium of system with forces surrounding it. As systems evolve they become extremely efficient energy and materials transformers. Just as dinosaurs became extinct and were replaced by human beings and other small and highly evolved compact life forms, our big and sometimes ugly cities will be replaced by smaller more compact rural communities. All design evolution process follows the size reduction as depicted in figure below.



Our technological designs are also doing that. Thus our computers, phones, power plants etc. are becoming more efficient, complex and compact. Similarly our energy production systems will also become smaller and more efficient to take advantage of locally available diffuse natural resources like solar, wind and biomass.

It is quite possible that the evolutionary model for our society could be compact and rural based. It will be driven by very advanced technologies so that it will be able to feed and create for its inhabitants goods and services from the raw materials available to it in its geographical area. With the availability of Internet, desktop manufacturing, small renewable energy powerpacks, genetically modified food and other advanced technologies being researched in laboratories all around the world, it will be possible to have a sustainable development.

In fact sustainable development can be defined as a process in which we use recyclable materials, resources and energy for our needs in an extremely efficient and environmentally sound manner. This process can be facilitated by advancement in technology.

A recent study done in India showed that for a community size of Taluka (equivalent to a county in U.S.) all its energy demand of electricity, liquid and gaseous fuels could be met by judicious use of locally available biomass resources. With provision of large-scale employment generation, Taluka model can provide critical mass for sustainable development⁴.

Spirituality and Sustainability

However all the development models will become untenable if we do not put a cap on our greed for materials, resources and energy. Present economic models are based on increased consumption and encourage greed. Ever increasing choices available to an average person fuel the greed impulse since the fear of missing out is very high. Spirituality can help in keeping our greed for materials and resources in check and sustainable development can only take place when we use the resources for our needs and not for our greed as Mahatma Gandhi once said.

Spirituality is the state of mind that makes it understand that the Truth is beyond the barriers of worldliness, caste, creed, race or geographical boundaries. It is universal in nature and a great spiritual thought is a cause of celebration for the whole mankind. It connects us to Universal Consciousness and gives a certain perspective in life. As a person progresses on the path of spirituality his or her priorities in life change. The focus of life shifts more towards getting personal happiness through mental peace and is less on material needs and desires and more towards sustainability. Recent examples of Mahatma

Gandhi and Einstein have shown that with very few needs and living very simple lives they were able to produce the highest quality of thought.

Spirituality also helps us have a compassionate view of nature and as we evolve spiritually we become more tuned to it which helps us in preserving it. Besides it helps us live in harmony with each other and enables everybody to work together for the common good. Also in all religions the respect for nature is preached and the maxim of simple living and high thinking is ingrained.

Nevertheless the clock on technology cannot be turned back. It is an evolutionary process and as we advance technologically we also become more spiritual, since technology helps us in doing things more efficiently and thus our needs are satisfied with less quantity of materials and energy. This allows us to think and reflect on higher things in life. Eventually we will follow nature where all the processes are carried out extremely efficiently with few materials, in minimum number of steps and at room temperatures⁵. Thus a combination of high technology together with spiritual growth will be a new paradigm of sustainable development.

How can we do it?

A change in mindset is necessary for sustainable growth. The best way to do it is to teach children in schools and colleges about wonders of nature and limitations of natural resources of the world. The awe that the children will feel on knowing that nature has nearly all the answers to the design problems we are trying to solve will produce in them respect and love for it. Besides, the knowledge that our world resources are finite and we need to husband them carefully, will help instill in them frugal habits. This early training can have a tremendous impact on an impressionable brain and will help create a generation of responsible citizens. In this process the role of women needs to be brought to the mainstream specially in developing world. They constitute 50% of the race and can tremendously influence the children. A program where all the scientists from the major labs are required to teach part-time in schools and colleges will also be a step in the right direction.

There is also a need for international cooperation on development of sustainable and environmentally sound technologies. Three billion people who live below the poverty line in developing countries need to be brought into the mainstream of progress. Their aspirations for the good life have been fuelled by electronic mass media. If they remain in a state of poverty the destruction of nature will continue to take place, since developing countries are following the same nature destroying pattern of developed countries half a century ago. Equitable international cooperation in technology and resource transfer will allow the

developing countries to leapfrog into modern age and help in environment improvement. The ensuing economic and social development will also help reduce the social strife in the world.

Though we human beings have changed the tapestry of nature and produced problems facing our planet, yet we have this innate ability to take corrective actions once the information and knowledge is available to us. Thus the fear of greenhouse gases, genetically modified foods, animal and human cloning can be allayed by continuously evolving technological and social interventions. The upsurge of movements around the world in the renewable energy and environmental fields attests to this fact.

Nevertheless there is a need to create a spiritual movement so that march towards sustainability is holistically driven. Hence it is the responsibility of all of us scientists and technologists to inform the citizens about these issues in a sustained and responsible manner. This will help educate the politicians, policy makers, corporate world and environmental pressure groups so that we evolve towards sustainable living.

References

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NARI is planning a [small workshop](#) on this theme shortly

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