*Technology Quo Vadis+

Katta G. Murty

Department of Industrial and Operations Engineering
University of Michigan, Ann Arbor, Michigan 48109–2117, USA
Phone: 734-763-3513; fax: 734-764-3451; e-mail: katta_murty@umich.edu
webpages: http://www-personal.engin.umich.edu/~murty/
http://www.guthy.com/murty/index.html

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Abstract

We all dream that future technologies are going to eliminate pollution, provide sources of unlimited energy for mankind, change mankind for better, empower generations, bring the world together, and save the environment. In this article we take a reality check on these dreams, and outline some simple steps that each individual can take to minimize the ravage of nature being committed by humanity and its technology.

Key words: Knowledge, science, technology, nature, trees, lean nation, grow more trees, grow fewer children, Murty's law on pollution, peace for humans and extinction for other species, our fossil fuels civilization.

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* Translation of the Telugu essay that has won the 1st prize in the contest organized by Vanguri Foundation of America for Ugaadi 2001.

+ This word from Latin means "what is your destination? whither are you going?".

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1 The Dawn of Human "naagarikata" (Civilization)

Human "naagarikata" (civilization) originated in India (and in some other places in the world too, but we will discuss its origin in India) more than 20,000 years ago with the composition of "vEdAs" (knowledge) as a quest for understanding natural phenomena.

Everything in the world appeared highly mysterious at that time and our ancestors living in India tried to understand the causes for these mysteries. In this process they posed many questions for study and investigation. You see these questions again and again in the vEdAs, upanishads, and purANAs composed around that time. Here are some of those questions

1. What is lightning?
2. Where does rain water come from?
3. Can't humans fly like birds?
4. What is death?
5. Why must every living thing die?
6. What happens to a living thing after death?
7. What is the difference between the state of living, and state of "not living"?
8. What is the spark of life?
9. What is the purpose of human life?
10. How can man attain immortality?
11. Why does the sun go down the horizon every night, only to rise the next morning?
12. Where do the sun, moon, and the stars get light energy from?
13. Why is it hot in summer and cold in winter?
14. Why are there waves in the sea?
15. Why are some people beautiful, some ugly; some healthy, others sick; some enjoy, others suffer; etc.?
16. Why are some women so fertile, while others are sterile?

These are very deep and philosophical questions, and I feel very proud of my ancestors for having posed such deep questions which stimulated the development of human intellect.

Our ancestors did not like darkness, death, and sterility. They developed the concept of "prANa" (spark of life), and wanted to understand what it is. They developed the concept of *immortality*, and sought to find out how to attain it. They theorized that there is a divine juice "amrutaM" drinking one drop of which confers immortality on oneself. One of their main obsessions was to find this "amrutaM". Human population was very very low at that time, and they worshiped high fertility. Couples with a large number of children commanded great respect in society.

Their yearning for knowledge was expressed in the following chant from "bruhadaaraNyakOpanishad" in "RugvEda" (RugvEda is perhaps the very first document composed by mankind, and this chant in Sanskrit is perhaps the very first poem composed by man).

asatO mA sadgamaya
tamasO mA jyotirgamaya
mrutyO mAmrutaM gamaya.

The meaning of the various lines in this chant is

From ignorance lead us to knowledge
From darkness lead us to light
From certain death lead us to immortality.

In those days the form of writing which we take for granted today was not yet developed, and there was no medium like paper to write upon. So, they developed an amazingly simple *oral tradition for preserving and passing on knowledge to the next generation*. They composed their findings in the form of poems which can be sung in a manner very pleasing to the ear. Some people were given the responsibility of memorizing these compositions and reciting them daily so humanity would not forget and loose them for ever. These people became the "brAhmaNas", it was their social duty to learn all these compositions correctly by heart and recite them every day, and thus pass them on continuously from one generation to the next. Our ancestors were very concerned that these compositions collectively called the "vEdAs" (bank of knowledge) may be lost for humanity if the brAhmaNas did not recite them daily, that's why brAhmaNas became the most important members of society and their work (memorizing the vedAs, reciting them daily, and passing them on to the next generation) became the most important work in society.

When a man is doing his "vEda paaraayaNa" (reciting the vEdaas) at home, his children naturally learn the vEdaas easily by listening. This led to the custom of brahmin's children becoming brahmins themselves. This custom gradually led to the "caste system" in India.

1.1 The Origin of Morning Prayers

Since the vEdaas were not recorded at that time, the only way to teach them to the children of next generation was to make them listen to an adult reciting them again and again repeatedly. Children usually have very short attention spans, and when they are fully awake they would rather play than listen to a vEda recital. So, our ancestors found out that the only time they could reliably grab the attention of children was in the early morning when they are still in bed. So they decided that the best time for vEda recital is early morning. This has started the custom of vEda recital early every morning. This custom evolved into the practice of morning prayers in religious rituals.

1.2 Birth of Music

The oral tradition for preserving the vEdaas gradually evolved into singing and gave birth to music.

1.3 Some Definitions

Here are some definitions

Knowledge =	understanding of natural phenomena
Science =	collection of accumulated knowledge
Technology =	application of science to solve problems faced by mankind.

Thus acquiring knowledge, and developing technology, started as very noble, highly desirable, and very sacred enterprises.

2 Science and Technology Today

We have come a very long way since the time of the composition of the Vedas. One of our latest scientific feats, completed in the year 2000, is the breaking of the genome code (the molecular blue print of the human body) for a basic understanding of how our body works at the molecular level.

Another technological feat is the development of the world wide web, which allows anyone anywhere in the world to read this article that I am writing in Ann Arbor, Michigan, using a simple personal computer on his/her desk.

These are really stunning achievements for the human intellect.

But unfortunately, as the base of human knowledge grew, the purpose of science has changed from "understanding nature" to "acquiring absolute and total control of nature exclusively for the needs and pleasures of mankind even at the risk of the total extinction of other forms of life". This is regretable and reprehensible.

2.1 Everyone Is A Specialist

Our knowledge base is now so huge, that any one individual can learn only a small and narrow branch of science in their lifetime. Because of this, it has become natural for everyone to get trained in one narrow branch of science, specialize in that branch, and not pay much attention to other areas of knowledge.

Thus everyone is like a cog in the wheel, specializing in one very small branch of science. For your amusement, I will relate a small story which illustrates how far this trend of specialization has gone these days.

Due to unbearable ear pain a person goes to the ear department in a hospital and asks the doctor to examine him.

> Doctor: What is your problem?
>
> Person: Unbearable pain, ringing in the ear, ...
>
> Doctor: Stop, stop. First tell me in which ear you have the problem.
>
> Person: Left ear.
>
> Doctor: Sorry, I am a specialist of the right ear. Please see my colleague in the next room.

Because of so much specialization, no one has a clear grasp of the overall developments in science and technology, which way they are going, and how technology is being used by others; and they do not also care.

2.2 The Paradox of this New Century

The new 21st century is a paradoxical time in human history.

The paradoxes of the 21st century	
More knowledge,	but less judgment
More wealth,	and also much poverty
More material possessions,	but less happiness
Great medicines,	but less wellbeing
More technology,	but many more problems
More leisure,	but less fun
Lots of food,	but also much hunger
More housing,	but many more homeless people
More degrees,	but less sense
Longer lifespans,	but less life in years
Many experts to fix problems not very critical	
Very few that can tackle real problems.	

2.3 Changes Wrought by Technology

The following poem which is my free modification of one by a high school student P. Chinnu [1] expresses what we are doing to this world with our technology.

Human encroachment is putting Mother Nature on her deathbed

Noisy jet planes dominate the sky
Foundation stones being laid everywhere
Giant cranes, and chainsaws that topple majestic trees in no time
Bulldozers tear up the soil and give a heart attack to Mother Nature
Steel and concrete replace the pristine wilderness
Mankind's buildings rise and nature dies
As man takes over another chunk of land
for his ever expanding enterprise.

In the following sections we will examine the other changes taking place in this world due to human activities.

3 Global Warming

An important definition first.

Equilibrium = A condition in which all acting influences are cancelled by others resulting in a stable, balanced, or unchaging system.

As an example consider the human population. It increases due to births, and decreases due to deaths. In a period if births and deaths occur in equal numbers, the population will remain in equilibrium. So far, we have always seen more human births than deaths, that's why human population has never been in an equilibrium, it has always been growing.

For another example let us consider the level of water in a lake. When water inflow occurs due to rain or other sources, the level rises. When water outflow occurs due to evaporation or other reasons, the level goes down. When the inflows and outflows occur in equal amounts, the lake's water level will reach an equilibrium.

Let us now come to the main topic of this section. By absorbing the energy from sunlight in daytime the earth warms up. It sends some of this energy back into outerspace through infrared radiation. The earth's temperature will remain in equilibrium if the amount of energy absorbed from incident sunlight, and that sent back into outerspace through infrared radiation are equal. Until recently earth's temperature has been at an equilibrium for a long time.

Some gases in the air, called **green house gases** have the property of preventing the dissipation of energy into outer space by absorbing the infrared radiation going out, and sending some of it back towards the earth, adding to its warming.

Water vapor is a green house gas. Since a cloud is a visible body of water vapor, we feel nice and cozy on cloudy nights in winter. On the other hand on a clear cloudless night in winter we feel the shiver-inducing cold.

Carbon dioxide (CO_2) is a more effective green house gas than water vapor, it absorbs more of the outgoing infrared radiation than water vapor. Until the 18th century, the percentage of CO_2 in the air by volume used to be 0.027.

Fuel is any material that provides useful energy. Natural fuels like coal. petroleum (also called crude oil), and natural gas obtained from underground deposits that were formed millions of years ago from the remains of ancient plants and animals are called **fossil fuels**. Fossil fuels release energy when they are burnt with oxygen in the air, this also releases large quantities of green house gases (mainly CO_2, and nitric and nitrous oxides generally referred to as NO_x) into the air.

All our technologies require large amounts of energy as input. We are obtaining a small portion of this energy from nuclear reactors and hydroelectric power plants. But almost 97% of the energy that people use today is produced by burning fossil fuels. This releases large quantities of CO_2 and other green house gases into the air, making up the most important air pollution being created by human activities.

Vegetation and trees absorb CO_2 from the air and in the process of photosynthesis they synthesize carbohydrates from CO_2, water, and energy from sunlight; with the simultaneous release of oxygen.

However, the amount of CO_2 that we are releasing into the air by burning fossil fuels far exceeds the amount of CO_2 absorbed from the air in photosynthesis by plants. Because of this, the equilibrium of CO_2 in the atmosphere is upset, and its percentage in the air is increasing. Now it has reached 0.037 by volume, and continues to increase. Since CO_2 is a very effective green house gas, this has upset the temperature equilibrium, and the earth's climate is getting warmer. This phenomenon is called **global warming** or **green house warming**. The main reason for this global warming has been shown to be the large quantities of green house gases being released into the air by the burning of fossil fuels by mankind.

There have been numerous reports in scientific journals and newsmedia documenting evidence of global warming. We will cite a couple of these. In [2] it has been reported that in August 2000, for the first time in 50 million years, the north pole is awash in water because the thick ice that has for ages covered the Arctic Ocean at the pole has turned to water. The report says that an ice-free patch of ocean about a mile wide has opened at the top of the world, this same area was observed six years ago to have been covered by a layer of ice at least nine feet thick. This report and [4] conclude that the rate of atmospheric and oceanic warming has accelerated significantly in the last quarter century. In [3] it is reported that ocean temperatures in the tropical northern hemisphere are going upwards by 10 times the global average, due to which there is a very high probability that coral reefs as we know them now will be gone in 30 to 50 years. Other effects of our activities are discussed in the following sections.

4 Jet Plane Traffic Enhancing Global Warming

At each point on the surface of the earth, as we go up in altitude the temperature drops. As the altitude increases, at some point this temperature-decrease stops, that point is called the tropopause. The earth's avarage temperature at ground or sea level is about 16^{0C}, it drops to an average temperature of about -65^{0C} at the tropopause. The height of the tropopause varies from about 16 kilometers over the equator to about 10 kilometers over the north and south poles.

The layer of air between the ground or sea level and the tropopause is called the *troposphere*. All the earth's weather (water vapor, clouds, rain, snow) occurs in the troposphere.

The next layer of air above the troposphere is called the *stratosphere*, it begins with the tropopause and ends at its upper boundary called the stratopause at an altitude of about 48 kilometers.

Within the troposphere the temperature of the air decreases as the altitude increases. In the stratosphere the temperature of the air increases with altitude (from about -65^{0C} at the tropopause to about -2^{0C} at the stratopause). The change of the temperature gradient with respect to the altitude from negative values to positive values beginning at the tropopause is called temperature inversion.

The stratosphere is nearly cloudless and mostly very dry.

By the time we reach the stratosphere, almospheric pressure drops to about 9 m.b., less than 1% of the atmospheric pressure of 1013 m.b. at sea level. So the air in the stratosphere is highly rarified. That's why when jet planes fly in the stratosphere, they encounter very little air resistence, and fuel consumption goes down significantly. Hence most jet planes are flown in the stratosphere as far as possible. In spite of this, a commercial jet planes burns 8 times as much fuel per passenger mile as a public transport land vehicle like a bus [5].

Each flying jet plane spews large quantities of green house gases all along its flight path in its exhausts. Since the atmospheric pressure there is low, the air composition changes easily even with the introduction of small quantities of external materials. Besides, there is no vegetation or

water vapor in the stratosphere to absorb the CO_2, so it remains there until it descends into the troposphere. CO_2 released in the stratosphere takes many years before it descends to the troposphere due to the temperature inversion at the troposphere-stratosphere boundary.

Because of this, the increasing jet plane traffic is causing the percentage of CO_2 in the stratosphere to be higher than that in the whole atmosphere. This results in enhancing global warming.

Plane travel is going up very rapidly all over the world, since people find its higher speed very convenient. The price of this convenience is enhanced global warming.

5 Trees and Bushes Are Disappearing

In the USA we have become experts in converting nicely growing young trees into paper products like newspapers, telephone directories, magazines, paper plates and napkins, tetra pack containers, cardboard, etc. that have a very short useful life and eventually become trash. The quantity of paper used in USA is much higher than any other country in the world. In fact some countries like Canada are depleting their forests to meet the US demand for paper.

It is possible to reduce the amount of paper devoted to such short-time-uses easily, but nobody seems to care. For example, telephone number data can be installed on the web, and people can access this data on their computer screens without needing a paper telephone directory. But the phone companies want to publish new phone directories every year because they make huge sums of money from advertising revenues.

In the same way it is quite easy for newspaper companies to deliver news to their subscribers electronically without printing it on paper at all. However, newspaper companies continue producing their product every day, most of which is junked by the public on the same day it is produced, sometimes without even being read. Why? Because they do not consider saving the lives of some trees to be important.

Another product is toilet tissue. We now have bidet-with-vertical-spray, which cleans the human body with a powerful spray of water, without the need for any toilet tissue. It is much cleaner and healthier than toilet tissue. With the simple turn of a cap, this tool produces a powerful stream of water vertically upwards to clean the body. It is a totally hands-free operation that is so pleasant to use. If the majority of households in the developed world switch to bidet-with-vertical-sprays, they will not only save a lot of trees, but also reduce the amount of sewage to be treated substantially.

What is the basic reason for our callous attitude towards trees? Mainly because most of us think that trees are there for us to kill and use anyway we like.

I give below a poem on the beauty of trees which is my free modification of a famous poem by the American poet Alfred Joyce Kilmer(1886-1918).

Trees.

1. I believe that there is nothing in this
whole universe that compares with
the sublime beauty of a tree.
2. I think that I shall never see
a poem lovely as a tree;
3. A tree whose hungry mouth is prest
against the earth's sweet flowing breast;
4. A tree that looks at God all day,
and lifts her leafy arms to pray;
5. A tree that may in summer wear
a nest of robins in her hair;
6. Upon whose bosom snow has lain;
7. A tree that provides refreshing shade
to all creatures on hot summer days;
8. A tree that provides heavenly fruit
to all creatures without even being asked;

9. A tree that provides sweet honey
to the dainty butterfly;
10. A tree that provides shelter
to the fireflies glittering in darkness;
11. A tree that heralds spring
with its sweet smelling flowers;
12. A tree that became coal for man's use;
13. A tree that made the soil fertile
with the leaves and branches it sheds;
14. A tree that protects the topsoil with its roots;
15. A tree that brings water from the deep folds
of Mother Earth and hands it to the clouds;
16. A tree that produces life-sustaining oxygen;
17. A tree that is the main pillar of the cycle of life;
18. A tree that dances in the gentle breeze;
19. A tree who intimately lives with rain.
20. Poems are made by fools like me,
But God, only you can create a tree.

Unfortunately, most present generation humans do not seem to have this kind of respect for trees. We kill them in large numbers daily. Also, the recent growth in e-technology/e-commerce has increased the need for cardboard for packaging enormously, and many trees are killed to make wood pulp with which cardboard is manufactured.

In nature many tree seedlings come up, but most of them are killed while mowing, weeding, cultivating, thinning, golfing, skiing, snowmobiling, driving, or other forms of trampling involved in human activities. So, the few that survive and grow in spite of all this mishandling should be harvested only for really essential uses. We need to appreciate that the purpose of trees in nature is to grow and do all the wonderful things that they do as described in the above poem, their main purpose in life is not to be killed by greedy humans for conversion into instant trash.

6 Peace for Humans, Extinction for Other Species

We always talk about **world peace** as a very sacred and lofty goal. I once watched the Miss Universe contest on TV. The contestants are very beautiful girls from all over the world. The contest involves evaluation of not only physical beauty and looks, but also talents in swimming, dancing, singing, debating, and many other skills. After many tests, five finalists are selected. In a final test each of these finalists was asked to respond to one question. That question was "If you are granted just one wish, what will it be?". The winning finalist's response was "world peace". She explained that it means peace for all the people all over the world. She received very wild applause, and was selected as Miss Universe for that response.

We human beings are so very self-centered. We talk about peace only for ourselves. The numbers of other large animals and trees etc. are already down to very small numbers due to merciless killing by the already 7 billion and soon to be 15 billion humans. For example, the coastal waters of Florida are home to a very gentle creature called the manatee. Today only about 200 manatees are left. Don't the manatees deserve peace at least now? Or should these small number of manatees also perish by being crushed by the pleasure boats of mankind cruising off the coast of Florida? In the same way the coastal waters around Hong Kong are home to very beautiful pink dolphins, of which only about 300 are left. Don't these 300 remaining pink dolphins deserve some peace at least now? They are perishing due to human encroachment of their home in reclamation projects in the shallow waters off Hong Kong coast. In the same way the 150 mountain lions still left in California, a few thousand elephants, lions, tigers, gorillas in Africa, Asia; a few thousand majestic mahogany trees in South America, a few hundred rhinoceros in India, etc. deserve some peace for themselves at least now. Their home is being encroached upon by the ever growing human population relentlessly.

Let me relate an experience from my childhood. As a teenager growing up in India, I remember going on a vacation trip by boat on Kolleru lake (a huge shallow lake, wetlands area) with my family in the 1940s. It was a sailboat maneuvered by two oarsman, and did not have any motor powered equipment on it. To my kid's eyes the lake appeared very huge. Our destination was a temple for the lake goddess Kolleru on a small island in the middle of the lake. It took us two whole days to reach the temple, and another two days to return. All along we saw innumerable types of water fowl, and an abundantly growing lake tree called "bendu" ("cork"). The trees have two to four inch thick trunks of corklike material which was white, very soft and spongy inside and with a green colored bark on the outside. We kids had lot of fun fighting with each other with the branches of this tree. You can hit siblings with great force with this branch, but it would not hurt because of the softness of the wood.

During a recent trip to India, I went to visit Kolleru again. Alas, the lake is completely gone! It was drained for building houses for the growing human population, and for growing more rice for human consumption. All the nice waterfowl are gone, and the beautiful cork tree in that lake is now extinct. Unfortunately, the Lake Goddess was not able to protect her beautiful lake, and all the gentle creatures and plants she created in it, from being destroyed by humans. All these species have perished from human encroachment of their habitat. Today, the same devastation continues at a faster rate all over the world.

Habitat encroachment is not the only thing. Many of the recent technological developments are actually very harmful to other species in nature. For example, the pollen of genetically modified corn has been shown to be highly toxic to many species of butterflies.

We humans want peace to produce more of our own. Our actions, and treatment of other species is such that they can find peace only in their death and extinction. The growing human population is trampling many other species to a very rapid extinction.

7 Lean Nations for Long Term Survival

After many years of observation and research, medical science has at last recognized obesity as a symptom of illness in the human body. For long term survival in a state of good health, they advocate that everyone should control their obesity to achieve a *lean body*.

A nation which is overpopulated, can be compared to an obese human body. Just as a human being has to control his/her fatness for maintaining good health, a nation has to control its population size for the well-being of its subjects. A nation can be defined to be a **LEAN NATION** if its population is so small that its citizens do not have to live in cramped quarters, and it can leave plenty of space for nature to thrive on its own without being trampled by humans. Lean nations are best equipped for long term survival. Unfortunately, today there are very few nations which are still lean.

If we want the Sanskrit blessing "sarvE janaah sukhinO bhavaMtu (happy living for all of humanity)" to materialize, it is very important to keep the human population low.

8 Our Fossil Fuels Civilization

The usage of fossil fuels is growing very rapidly all over the world. At present the USA imports 60% of its crude oil needs. As demand is catching up with supply, they are seeing the prices of gasoline, natural gas, heating oil, and aviation fuel going up. Consequently, we frequently see the US President appealing and putting pressure on OPEC countries to increase crude output and reduce prices.

Over the last 30 years, the price of crude oil has been kept low by the powerful rich countries through military might and political maneuvering. During this long spell of unreasonably low crude oil prices, I have read many articles written by famous politicians and scientists proclaiming that crude oil is gradually becoming irrelevant to modern technology. If the OPEC countries increase crude oil prices, they say that the West will develop alternate energy sources that will make their crude oil unnecessary. Saudi Arabia, the largest oil producer, is their frequent whipping boy, they warn the rulers of this country to pay attention for their own good. But everyone knows that this

is plain bravado, as in reality no new viable methods have been discovered for large scale energy production, and our demand for crude oil and natural gas is going up significantly every year, mostly driven by the ever increasing human population.

Technology is always like a double edged sword. It always brings in undesirable pollution and unexpected side effects. One technology that the scientific establishment is striving to develop is controlled thermonuclear fusion and other related nuclear technologies. Unfortunately, there are strong indications that these nuclear technologies, even if they are perfected, are likely to be accompanied by a shadow of very dangerous pollution that may make the planet unsuitable for life. Besides the hope of all these alternate technologies is the reality that our present day civilization is very highly dependent on crude oil and natural gas. Except for a few items like nuclear reactor technology, most of our technologies today need huge quantities of products derived from crude oil and other fossil fuels, to function. That's why our current civilization may be viewed as the **fossil fuel civilization**, and there are no indications today that it can be sustained for too long at the present huge levels without these resources.

I think it is prudent to plan to reduce our energy demands by developing a serious plan to check our population growth. Let me quote a Telugu proverb:

dIpamunnappudE illu chakkabeTTukOvAli.

Its meaning is "get the house in order while the lantern is on". The problem is getting bigger with each passing year, and it is high time that we pay attention to it.

9 Sanctions Imposed by Heads of Religions

People frequently ask me "The head of our religion says that using artificial means of birth control like the pill, condom, vasectomy, tubectomy etc. is a sin for which we can go to hell after death. What should we do?" Unfortunately, most religious leaders are unwilling to open their eyes to the reality of today. Their only knowledge comes from reading documents prepared by their predecessors a very long time ago when human population was very low and nature appeared endless and indestructible. Also like most other human beings, these religious leaders are obsessed with growth because they want to boast that their followers number in the billions, that they are the dominant religion in the world, and they may also want to benefit from the large contributions that may flow from the increasing number of followers; even though this type of greedy behavior is unbecoming for a religious leader. When people ask me this question, I tell them to use their own judgment. God created nature too, why would he want the nature he created to be completely destroyed by the growing human population? I sincerely believe that under the conditions prevailing today, God would greatly appreciate it if each of us individually adopt and follow the **Grow Fewer Children** motto by whichever techniques are convenient for us to use.

10 Solution to Pollution

The technologies we are using today release different types of pollution on land, water resources and air.

All the governments are allocating a lot of research funds to develop new technologies that will eliminate or at least reduce the pollution being generated today without causing any hardship to our lifestyles. Even if such a technology is developed and implemented, it will create new types of pollution itself. Also anyone who has studied human behavior knows that there is really no end to human desires. If a technology to control the pollution in satisfying one desire is discovered and successfully implemented, then we will have another desire that generates much more pollution. Therefore it is impossible to control pollution by developing new technologies to reduce the pollution being caused by existing technologies. I named this **Murty's Law on Pollution**.

As human population keeps on increasing, so does pollution. The following are essential to control pollution: 1. Limit the population, and 2. Adopt simpler lifestyles that will create less pollution in the first place.

The idea that some future technology is going to eliminate pollution, change mankind, empower generations, bring the world together and save the environment is just more of the hyped promise of the technology revolution.

11 How You Can Help

Let me quote a Telugu proverb

> chIkaTini tiDutU kUrchOka
> vIlaitE chiru dIpaM veligiMchu.

Its meaning is: "don't just sit there cursing the darkness, try to light a small candle".

Considering all the problems discussed above, we need to encourage the younger generation to change the course of technology to make a difference. Here are a few examples of the kind of things that each of us can do individually.

11.1 Set an Example for Population Control Effort

Our ancestors feared sterility, but there is no evidence that they were upset with excessive fertility. Now with the population problem so serious everywhere in the world, nobody seems to know how to handle it. So, as an appeal to show a path for tackling the problem, I completed the classic chant from BruhadaraNyakOpanishad mentioned in Section 1 by adding a 4th line to it as follows:

> asatO mA sadgamaya
> tamasO mA jyotirgamaya
> mrutyO mAmrutaM gamaya
> adhika saMtAnO mA mita saMtAnah gamaya.

The meaning of the fourth line is

> From excessive fertility lead us to limited fertility.

It is important to control the population not only in countries like China, India, but also in USA, the rest of Americas, Europe, and in fact all over the world.

It will be a great help if you can follow the Grow Fewer Children motto in your own family and set an example for others. In this respect, let me mention an item that appeared in the news in the year 2000. The British Prime Minister and his wife had their fourth child at that time. There is a Sanskrit proverb

> yadhA rAjA tadhA prajA (a king's subjects follow the example that he sets).

It is not my intention to criticize this couple personally, but I want to use them to illustrate a point I want to make, for which I offer my apologies. I believe that they have not set a good example. If people in highly visible public positions set good examples themselves, it will be easier to make the general public realize the seriousness of the problem. Personally, I myself had a vasectomy after our second child was born.

11.2 Reduce Using Wood Products

Try to minimize the use of paper products and follow the **Grow More Trees** motto. If possible stop subscription to newspapers printed on paper, or at least share it with several others (you can get news on TV, radio, web, etc.; or you maybe able to take home the newspaper that your office buys, to read the next day). You can reduce the use of toilet tissue by installing a bidet with vertical spray or any one of the other equivalent products, in your bathroom. Send greetings by e-mail, and stop sending paper greeting cards. Make a concious effort to reduce the use of paper napkins, paper plates, paper bags, etc. When you fly and the airline hostess gives you a paper napkin that you do not need, tell her that you do not want it. Discourage the use of totally unnecessary giftwrap.

11.3 Teach Children to Appreciate the Beauty of Nature

Nowadays it is very rare to find a child who appreciates the splendor of a majestic tree. Why talk of children, it is very rare even to find such an adult. The main reason for this is that our present educational system has no place for teaching the art of savoring the beauty of nature.

Do not be content with growing a nice manicured lawn in your yard. With the help of your children plant and grow as many trees as possible, and teach them to admire natural beauty.

11.4 Oppose Bad Technologies and Products

Food items like coffee, tea, soft drinks, chocolate, and alcoholic beverages are not essential for bodily nourishment. To make these, we are growing grape, coffee, tea, chocolate plantations for which we have occupied a lot of land from nature. As the use of these food items grows, more and more land will be brought under human occupation. So, by minimizing the use of such food items, we will be helping nature.

Do not blindly believe that everything suggested by scientists with great fame and reputation is good. As an example, I will mention an idea discussed in the news recently to eliminate global warming, reported to have been suggested by the big name American scientist Edward Teller. He is often called the father of the hydrogen bomb, and he wields a lot of influence in US military and government circles.

Dust in the atmosphere reflects some of the incoming sunlight back into outer space before it reaches the earth. Because of this, almospheric dust can decrease the amount of energy that the earth absorbs from sunlight.

Teller's proposal is to make dust bombs and explode them in the stratosphere. This will create a layer of dust in the stratosphere which will reman floating there for several years. This dust layer will reflect part of the incoming sunlight into outer space, thus eliminating global warming without having to cut down the amount of fossil fuels burnt.

This proposal sounds quite logical. However, if the stratospheric dust layer reflects away too much of the incoming sunlight, the earth may begin to freeze. If this happens, we are totally helpless since it is almost impossible to remove the dust layer once it is created.

It is our duty to vigorously oppose the implementation of such dangerous technologies.

Above all, I am sure you can use your imagination to lead a very happy and highly productive life without the need for fancy future technologies being developed that cause the destruction of the small fraction of nature that is left.

12 References

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