**IR. K. KUMARASIVAM MEMORIAL PUBLIC LECTURE FOR 2005**

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# "HARMONISATION BETWEEN HUMAN CIVILISATION AND NATURE BY ENVIRONMENTAL MANAGEMENT AND ECOTECHNOLOGY"

One of the great challenges of the 20th century was to prevent a worldwide clash between the communist system and the democratic system of values and economics. It seems that this task has been largely accomplished. However, the human economic and social systems of the 21st century have moved so far away from the ecological system of nature that human civilisation is in the process of destroying itself.

Restoration of harmony between technological civilisation and the natural environment is the most important task for this century; and at the same time the one that gives the best opportunities for economic prosperity. It is a mission which is centred on sustainable management and sustainable technologies.

## Sustainable management

The widest possible dissemination of sustainable management among governments, business companies and local players should therefore be one of our principal goals.

The International Network for Environmental Management (INEM) comprises 35 Business Associations for Environmental Management and Cleaner Production Centres in industrialised countries, Central and Eastern European countries and developing countries. In Malaysia, Ir. K. Kumarasivam set up the important ENSEARCH association in 1984, and it joined INEM in 1993.

One of the specific features of INEM is its focus on management tools for small and medium sized companies. These activities are in line with the SMALL (Sustainable Management for All Local Leaders) concept. This is aimed at the small players – the hidden giant – in industry and services, farming, energy, financial services, education and public administration.

## Sustainable technologies

Sustainable technologies, especially ecotechnology including bionics, are essential as well if we are to survive and to achieve a certain degree of prosperity. It is vital to promote this kind of survival technologies by efforts in academia, in practical implementation and in awareness raising.

Our technical civilisation is about to make a quantum leap in its innovation culture. Its guiding principles in future will be:

1. Inspiration for innovation by evolution
2. Integration of innovation in evolution

Which nations will be the first to learn from the technical superiority of nature, making broad-based efforts to translate the products, processes and systems found in nature to human engineering? Whichever they are, they will have a huge competitive advantage in the global market, and at the same time they will have the honour of launching a forward movement into a new age of technical civilisation.

## A. Where are we now?

### I. Human beings and development phases of the relationship between civilisation and nature

Human beings have advanced through a number of development stages in the course of their history. Well known early humans from pre-historic finds include Proconsul, Ramapithecus, Australopithecus, Peking man, Neanderthal man and Cro-Magnon man.

The latest representative of the human race, the species Homo sapiens sapiens, has passed through a number of development stages in his relationship to nature. Has he fulfilled his claim to be a Homo "sapiens", that is a "wise" human being? Will he ever be able to fulfil this claim in future stages of development?

#### 1. Homo integratus – primary equilibrium

Human beings lived as part of the natural environment that surrounded them, feeding on plants and animals, like the other creatures around them.

In this pre-historic phase of humankind, the type and extent of human technical activities were such that they hardly had any impact on the ecological systems.

#### 2. Homo occupans – relative equilibrium

Human beings became sedentary and laid claim to land. They "occupied" and "owned" it, to the exclusion of other human beings and other living creatures.

In this phase, consumption of resources and generating of emissions had a recognisable impact (for example the clearing of the Spanish forests to build the Armada, burning of heathland for agriculture). But the global eco-system was able to "absorb" impairments of this kind, which were relatively limited in terms of quantity.

#### 3. Homo dominans – disequilibrium

Human beings organised local or national communities. Technical developments picked up speed. Human beings dominated other human beings. They systematically used, bred or exterminated animals. Human beings regarded other human beings and animals as subordinate to them.

Massive quantitative excesses in the technical activities of human beings became a danger to the long-term existence of human life on earth. The principle of parasite existence,

otherwise used by nature only to a limited extent, degenerated into monopolistic exploitation of nature by human beings.

### 4. Homo isolatus – critical phase

In this highly technical world, human beings have isolated themselves from nature, both in fact and in thought. They make use of the people working in the trade and industry purely as means of production. They perceive consumers only as a "market", as a means to increase sales volume and earnings. They see plants and animals principally as consumable products.

In this critical phase, there are two opposed development routes which may be followed. One is a "business-as-usual" scenario, and the other is a "change-of-course" scenario. The change-of-course scenario leads ultimately into a secondary equilibrium phase of the eco-system, with continued existence of the human species. The business-as-usual scenario leads through dramatic events ultimately into a phase of ecological equilibrium in the absence of humankind.

## Continued development in the business-as-usual scenario

### 5. Homo egocentricus – confrontation phase

For the sake of their own short-term advantage, human beings accept the destruction of other nations and future generations. They accept the disappearance of animal and plant species that do not serve their own short-term benefit. They are incapable of making present sacrifices for future benefits.

The main characteristic of this phase is the struggle of nations and individuals for limited resources and ecologically functioning living space. That is accompanied by ongoing environmental pollution, degradation of the environment, destruction of species, overpopulation and depletion of resources.

### 6. Homo anarchicus – destruction phase

The thoughts and actions of human beings are determined with brutal exclusiveness by the will to survive somehow. They brush aside obstacles rooted in tradition and ethical convictions. They use more and more radical means to save their own lives.

The destruction of the ecosystems reaches a catastrophic level. The exhaustion of resources causes scarcity, high cost, rationing and under-supply, ending up in anarchic conditions of "every man for himself". The only resource that is not sufficiently used is the most important one of all – that is the human brain. The consequences are overpopulation, mass deaths, migration wars, resource wars, terrorism as self-defence, and Draconian measures for regulation of the population. Stronger states set themselves up as core nations surrounded by buffer nations, and invade other nations to plunder their resources. Dictatorships of expediency spring up worldwide. The collapse of human societies, cultures and economies can be delayed in some areas, but can be prevented nowhere.

### 7. Homo extinctus – secondary equilibrium phase

The excessive contamination of the global eco-system with emissions, total resource exploitation and wars between remaining population groups, lead to the extinction of human beings.

An ecological equilibrium is restored at a lower level and with a reduced range of species, in the absence of humankind.

## Continued development in the change-of-course scenario

### 5. Homo solidarius – reorientation phase

Human beings feel a sense of responsibility for disadvantaged population groups, for minorities and for peoples that are in need of help, and for future generations. This also includes plants and animals, and in particular the protection of species.

The suffering of the population and responsible action by individuals, states and organisations leads to formation of a broad basis of ecological awareness and willingness to act on the part of the world's population. Ecological clear cutting is hindered by international conventions and national policies.

### 6. Homo fraternus – adaptation phase

The sense of responsibility and practice of action in solidarity of homo solidarius has matured to a culture of fraternity. Humans adapt their self-perception and behaviour to act as members of one family that comprises all life – including present and future generations of human beings, plants and animals on the whole of planet Earth. Their emotional commitment promotes courage, creativity, the willingness to make changes, stamina and desire for cooperation, to an extent previously unknown.

Human beings adapt their economic systems to the eco-systems, which gradually recover.

### 7. Homo reintegratus – secondary equilibrium phase

Human beings are restored to their former condition of homo integratus. Their experience and their thinking enable them to use products, processes and systems which combine efficiency and functionality with environmental acceptability. They have learnt to develop creativity and enjoyment of life without consuming large quantities of material.

Nature enters into its secondary equilibrium phase, without the elimination of humankind. Human beings succeed in developing a long-term state of sustainability. That is a condition where the generations living on Earth at a given time have a reasonable standard of living without preventing future generations from achieving a reasonable standard of living in their turn. The technical civilisation of humankind is in long-term harmony with nature.

## II. Untapped resources – technologies for sustainability

### 1. Rising demand

Long-term increase in the competitiveness of the economy of a country includes concentration on products and services which will inevitably and permanently be in short supply, so that there will always be rising demand for them. The exploitation of resources, pollution of the eco-systems, and associated self-destruction of the economic system will induce increased demand for those products and services that ensure the sustainability of the economy and hence the survival of society and of industry and commerce.

### 2. Establishment of core competencies

Nations with a sense of the future are therefore building core competencies specifically in those areas that promote sustainability of the economy. They include non-fossil methods of energy production, the development of environmentally sound materials and eco-technological solutions, in particular using bionic methods.

## III. Prospects for the century – a new Kondratiev cycle

### 1. Survivology – sciences and technologies

Those sciences and technologies which are appropriate for moving towards a sustainable society may be grouped under the heading of 'sustainability sciences' or 'sustainability technologies'. In view of their function of safeguarding the future and preserving life, I recommend that they should be called survival sciences and technologies, or simply "survivology". This terminology is intended to show people just how much is at stake.

### 2. Basic technologies – the heartbeat of the long-term business cycles

I am convinced that these areas of science and technology include the basic innovations that will set the next Kondratiev cycle in motion. Kondratiev cycles are the long-term business cycles described by the Soviet economist Nikolai Kondratiev (1892-1938), each lasting about 50 years, where each upswing is triggered by fundamental innovations. The survival technologies will have just as powerful an influence on society and the economy as earlier 50-year cycles that were triggered by other fundamental technologies (steam engines/textile industry, railways/steel production, electrical engineering/chemicals, petrochemicals/ automotive engineering, information technology). That is not only a prospect for the salvation of the human species, but also an opportunity for economic developments that will create a long-lasting phase of prosperity.

# B. What should we do?

## I. Ten guiding principles for technical civilisation

### 1. Harmonise human technical civilisation with nature

Humankind will survive only if it can move beyond the development state of the nature-destroying "homo dominans" and become "homo fraternus", acting in a spirit of brotherhood and conserving the environment on which humankind depends

## 2. Focus on promotion of eco-technologies, including bionics

The essential requirement to harmonise economic systems with ecological systems simultaneously creates the greatest economic opportunity for the 21st century for nations that have a sense of the future. Eco-technologies have a key function to play in taking this opportunity, that is technologies and forms of organisation which are environmentally sound and which follow the principle of "learning from nature".

There are several reasons for this key role that eco-technologies are beginning to take. They are relevant in practically all areas of technology (e.g. large-scale engineering plant, macro- and micro-architecture, vibration measuring equipment, audio and visual technologies, material technologies, surface technologies). Eco-technology shows new solutions for innovative products and production processes, and innovative organisation forms for systems.

Eco-technological solutions are set for exponential growth if we give them the central position which they should have in research and technology. They can provide vital inputs in areas such as surface optimisation, energy saving, material efficiency, durability and failsafe characteristics.

Not so long ago it was extremely unusual to read anything about bionics in the newspapers, but today the reports are following in close succession. The following are just two examples of that:

Recent media reports focused on "Insect format camera lenses". These are for ultra-flat cameras which have been developed using the principle of the facet eye as found in the common fly, achieving a thickness of only 0.4 mm. That will make it possible to integrate the optics and electronics in a chip card in the future.

Soon afterwards there were press reports with headlines such as "Crickets teach robots rapid responses". The brain of a cricket needs only four nerve cells for alignment to a sound source, with a response time of just 0.06 seconds. Efforts are now being made to transfer this rapid stimulus processing time to robots.

## 3. Make responsible use of eco-technological efficiency gains

The efficiency gains derived from eco-technology should always be used in a responsible manner.

In September 2004 reports were published on research into "Killer formation flying". That refers to analysis and simulation of the swarming behaviour of insects for the Australian Department of Defence, in order to combine the control of individual unmanned aircraft into an intelligent communicating network.

That research project is an example of the fact that bionic solutions are not automatically a benefit for humankind. As with all efficiency gain technologies, what matters is that human goals and actions should be guided by the overall objective of sustainability.

Another example of dubious use of eco-technological efficiency gains is a research project for accelerated improvement of Formula One racing cars. A simulation programme was developed with the aid of evolution sciences, where virtual Formula One racing cars successively generate ever faster "descendants". The computer model is based on a genetic algorithm which imitates Darwin's model of evolution. The computer model made it possible to achieve significantly improved lap times. Wouldn't it make more

sense to use this development method for optimisation of solar collectors and other survival technologies?

## 4. Generate efficiency leaps by enhanced evolutionary research

What matters is the knowledge that science and economics can benefit not only from products and processes obtained from bionics, but also from the optimisation methods used by evolution. Prof. Ingo Rechenberg of the Department of Evolution Engineering, Aerodynamics and Robotics of the Technical University of Berlin has examined the methods used by evolution to optimise its processes. That could be an approach for industry in future, getting it into the fast lane for solutions that would otherwise take decades.

## 5. Screen for eco-technological models

In the past there has been no systematic screening of all areas of technology for structures, processes and systems used by nature that could be a model for improved technologies. A key priority for industry and research policy is to introduce such systematic screening as fast as possible.

Some steps in this direction have, pleasingly, been undertaken in the work of the German "Bionic Skills Network" (Biokon).

Systematic analysis of some 20,000 to 40,000 "patents of nature" would in the opinion of Prof. Berndt Heydemann of the Nieklitz Ecology and Eco-Technology Foundation (NICOL) require a large-scale institute with a staff of at least 20 or 30 specialist scientists. That would undoubtedly be a worthwhile investment.

## 6. Screen for application of eco-technology solutions

Companies with technological leadership in specific areas should systematically check their respective technological goals to identify applicable models in nature. The same should as a minimum apply to universities and other research institutions that are leading in specific areas of the natural sciences and information technology.

The emphasis here is not only on the ecological processes themselves, with questions such as "What technologies are used by certain species to catch their prey, to divert the attention of enemies, and to ensure their own reproduction?"

It is more on the application of such processes in different areas of technology. That involves questions such as "What can we learn from nature for mechanical engineering, materials handling, precision engineering, and construction engineering?"

This second type of question is much more difficult. Often it is not possible to judge from the external appearance of an organism what answers it can give to technical questions relevant to human beings. A great deal of biological knowledge is needed to identify the right group of organisms for the specific technical question. There are many biologists today who have concentrated on issues of molecular biology. But there is a severe lack of biologists who think in terms of organisms and their relevance for eco-technology and bionics.

## 7. Link eco-technology education and engineering sciences

Education in the specific areas of technology at research institutions, universities and industry, at scientific institutes and in production, will need to have eco-technology training in future and, most importantly, they will need contacts with a sufficient number of well qualified partners with a background in eco-technology. For example, engineers specialised in surface technology will need to partner with specialists who can help them identify surface technology solutions in nature.

There is an increasing need for a broad-based generalist education in eco-technologies (rather than narrow specialist education), to establish good understanding that can be applied in the conventional engineering disciplines. Students trained in this way will become the general representatives of nature, giving conventionally trained engineers insights into the broad range of eco-technology solutions that nature provides. That will have key importance for the sustainability of trade and industry, and for the creation of new jobs.

There are promising approaches for this close link between eco-technology training and the engineering sciences. In Germany, for example, the University of Applied Sciences of Wismar plans to introduce an engineering course leading to a degree in "Eco-Technology". There are many engineering faculties, particularly in mechanical engineering, that offer Bionics as an option.

This link between conventional engineering sciences and eco-technology education should be reinforced. A useful stimulus in that direction can be provided by industry, by putting more focus on eco-technological training in recruitment. And that is precisely the approach taken in the next guiding principle.

## 8. Use natural model assessment in production

Companies that want to improve their products (or production processes) or to introduce new products in their range should be required to use a standard process of assessment of the "natural model". There are currently many areas where an Environmental Impact Assessment is mandatory to examine the environmental consequences of a technical solution (e.g. the extent of emissions and their impact, consumption of resources, and influence on eco-systems); the Natural Model Assessment systematically looks for ideas in nature on how to attain the technical or organisational goals. It involves observation of products, processes and systems used by nature (physical, chemical, macro-biological, micro-biological, informational and organisational) and their analysis with a view to achieving a defined technical result.

An ISO standard should be created for eco-technological quality assurance in research and development projects, comprising mandatory prior assessment to see whether, in the current state of research into technical biology or technical ecology, there is a model available in nature for the technical solution to be found. An appropriate approach could be to include in standards such as DIN EN ISO 9001:2000 and DIN EN ISO 14001 a requirement for prior assessment of eco-technological solutions available in nature. In this context I refer to a survey commissioned by me and conducted by the engineer Karsten Jordan.

### 9. Promote competence centres and competence networks

Competence centres for eco-technology and bionics should be set up in as many countries as possible.

One of the most important centres for Germany is the Future Centre Human-Nature-Technology Sciences (ZMTW), and it should play an important role in coordination of activities of research and teaching, in information provision and motivation of industry and the general public, with the appropriate funding. The Director of the Future Centre, Prof. Berndt Heydemann, is particularly well qualified for such coordination work.

Increased funding should also be given to the Bionic Competence Network (Biokon), which has been created from various different German institutions for eco-technology/ bionics. This competence network was set up only in 2004. Biokon is a recognised non-profit organisation. The new research programme of the Federal Ministry of Research focuses very much on the economic goals with regard to Biokon.

The German Pavilion at the Exposition of Global Harmony 2005 in Aichi, Japan, is held under the general heading of "Nature's Wisdom" and is dedicated to bionics; it is then to be transferred to the German city of Husum as a permanent institution.

Which nations are likely to take the greatest steps in the future for release of the economic potential for the future that eco-technology and bionics have in them?

### 10. Launch a broad-based eco-technology initiative

We need a concentrated eco-technology initiative backed by massive resources. It is important for it to have the support of an increasingly broad-based public consensus.

That requires initiatives by the national states and also by international organisations such as the United Nations.

## II. Achieving inner motivation

**Chart 1** shows the Temple of Sustainability, as **a first-semester economics student** might imagine it. The pediment with the inscription "Sustainability" is supported by three equally long, equally strong columns – the social column, the ecological column and the economic column. In this form the three-column model is one of the great fairy tales of economic theory.

**Chart 2** shows the Temple of Sustainability as seen by **some managers**. The economic column looks well fed, unlike the social column, and the ecological column is looking dangerously thin.

**Chart 3** is immediately recognisable as the view taken by **some trade union officials**. It is characterised by a massive social column, while the economic column looks undernourished, and the ecological column looks ready for the intensive care unit.

**Chart 4** shows the Temple of Sustainability as seen by **many ecological activists**. The ecological column dominates the picture, and is even adorned with leaf ornaments. The economic and social columns are very much on the sidelines.

But **scientific reality** looks quite different. It is expressed in **Chart 5**. The ecological column dominates everything, right at the centre, while the economic column and the

social column just hang from the temple structure. That is a simple truth which is rarely stated, and even more rarely respected in action. Without this support by nature, humankind cannot even exist, let alone deal with social issues. The economic and social columns are literally "dependent" on the ecological column. The ecological column existed for billions of years without the economic and social columns, and can continue to exist for further billions of years without these "dependents".

**Chart 6** shows the **consequences** we have to draw from Chart 5. If we want to achieve an economic system which takes account of the social consequences in the long term, and which is in long term harmony with the ecology, we have to face the facts – the Temple of Sustainability is largely identical with the ecological column. The column of the economy, the column of social commitment, and all the other columns of human existence and activity have to be embedded in the column of ecology if they are to survive in the long term.

**Chart 7** shows how we can achieve this goal. 'Ecological', 'economic' and 'social' are abstract terms. And **abstract terms do not motivate** people to act. We act with enthusiasm only when **we act for people, or for living beings**. We have to realise what we have in common with the living beings for which we wish to act. Then we will act in a **spirit of solidarity** with them. Then we will have a sense of solidarity which will give our thinking, our willpower and our action unimagined strength. If we act in a spirit of solidarity with living creatures, we will comply with the ecological, economic and social requirements almost as a side-effect.

The first priority for me is to act in a spirit of solidarity with **myself** – not with my own egocentric motives, but with my better self. And my intention in using the first person here, talking about "I", "my" and "myself", is to express the immediate involvement of each and every individual human being – we are all in the same boat.

As a father or mother, I am a responsible family member, so I feel a sense of solidarity with **my children**. That is why I get pleasure out of providing education, training and support for my children. A side-effect of that is that I am also providing a social service for the state; but my motivation is a sense of solidarity with my children.

If I am employed as a manager, it is not the economic factors that motivate me to increase the company's profitability. My role as a salaried manager is practically that of an entrepreneur, and as an entrepreneur I have the trust of the company owners or shareholders. And in the role of an entrepreneur I have a sense of solidarity with the **shareholders** – that sense of solidarity is my motivation for working with enthusiasm for good earnings for the company. But my sense of solidarity with the shareholders would come to a very sudden stop if they wanted me to serve one-sided speculative interests.

As a salaried manager, it is also my responsibility to ensure that my employees in the workshops, in the offices, and in field service have secure jobs with fair payment. I work to achieve that not because I am the slave of an abstract duty of social commitment. I do it of my own free will and with enthusiasm, because I am an employee of the company myself, and as such I have a sense of solidarity with all my **colleagues**.

I am not only the company manager and a company employee, but at the same time I am also a member of **other groups**, and have a sense of solidarity with them, too. As a member of the **local community**, I have a sense of solidarity with the people there, and as a citizen of my country I live in solidarity with other **citizens of my nationality**.

I am also an inhabitant of the planet Earth. And as such, I support the will to survive of **other inhabitants of the planet**, and support their efforts for acceptable working conditions in human dignity. The fact that development policy goals or social demands

may be met by doing that is not the motivation for my action, but rather a fortunate side-effect triggered by an elementary sense of solidarity.

And I am not only a human being, but also a living being. I am filled with enthusiasm for the living beings around me, and their incredible diversity. I am all more afraid that living creatures may be killed, simply out of thoughtlessness, and that whole living species may become extinct. My actions are motivated by my love of all **living beings** and fear of their destruction, my sense of solidarity with all living beings. Sustainability, ecological equilibrium, the need for biodiversity – all of those are important, but they do not motivate as such. The motivation for my action comes from my feeling of solidarity with other living beings.

So I am simultaneously a member of various overlapping and expanding **circles of solidarity**. What does the philosopher's stone do when thrown into a sea of despair? Maybe it sends out expanding ripples of solidarity.

I do not act as the reluctant executor of orders for the sake of "social causes", but because as a family member I act in solidarity with the other members of the family, because being employed as a virtual entrepreneur I act in solidarity with the shareholders, because as an employee in a company I act in solidarity with the other employees of the company, because as a human being I act in solidarity with the other human beings on this planet, and because as a living creature I act in solidarity with all other present and future living creatures. I never act as a slave of mere phrases and expressions, but always as a member of a group, in solidarity with the group and with the needs and interests of the group which is close to my heart.

So I am simultaneously a member of various different circles of solidarity. They comprise a larger or smaller number of individuals. It is not unusual for me to have several reasons for feeling a sense of solidarity with a person.

Sometimes I can act in solidarity with one person only at the expense of solidarity with another person. I often have to decide whether to use my limited resources at this point or that point for the conservation of life. Then my conscience tries to weigh up the situation, between **several possible recipients of my solidarity**. Sometimes it is impossible to avoid doing something wrong, whichever alternative I choose. If I incur guilt in this way vis-à-vis a particular person or living creature, I can only ask for forgiveness. Maybe **God** will then show me **grace out of solidarity**.

How can we achieve sustainability? Well, that is not the right way to ask the question – anyone who asks the question in that form has no chance of finding the right answer. The question should be "How do we take human beings and all living creatures of the present and future into our hearts and into our action?"

### C. From United Nations to United Nature

As human beings we have to recognise that all the nations of this world are merely a part of a higher-order nation. That higher-order nation is Nature. Its national territory is the biosphere, its national population the totality of all living beings, and its national authority is evolution. The form of government of this nation is biocracy (not bureaucracy but BIOcracy!), the rule of life, the aim of which is to maintain and develop the diversity of the species.

Human beings are in the process of creating serious disruption of the biological control loops and destroying the basis of their own existence. If they continue to do that, the human species is condemned to extinction. Evolution is the legislative, judiciary and

executive power in one. It executes sentences of extinction slowly and silently, but inexorably.

But humankind does have a chance of survival. It has to create a model based on the biocratic order, which applies to the whole of nature including humankind, within the order of its respective national states. Then the national states will also put the protection of biodiversity on their agenda, simultaneously serving the long-term protection of humankind.

The form of government has developed in many countries from monarchy to aristocracy to democracy. The basic trend is a stepwise increase in the number of those who participate in formation of national policy – from a single autocratic ruler to a ruling elite to an enfranchised population. The next systematic step goes from democracy to biocracy. The introduction of biocracy means that the national government of human beings ensures that the survival interests of all living species are protected by constitutional rights, that they are represented in parliament and in practical policy making. What may sound like utopia is in fact a survival strategy for humankind.

The first element in a democracy that is widened to become a biocracy would be to incorporate biodiversity in the catalogue of national goals established in the constitution, giving the Minister of the Environment a right of veto in environmentally relevant cabinet decisions, and giving environmental associations the right to take legal action against infringements of the rights of third parties constituted by anti-environmental action.

Evolution has given humankind understanding, and thus a quantum leap in terms of power. Nature will wipe out the human race if it fails to balance this quantum leap in power by a quantum leap in ethical awareness. This ethic includes all living creatures and demands that we should conserve life, promote life, and empower life to develop its full potential. This ethic includes all living species and makes no fundamental distinction between higher and lower forms of life, between more or less valuable life.

No chess grandmaster can compete with evolution. Mostly it allows the fittest to survive. But it will allow humankind to survive only if humankind renounces the principle of "might is right".

We human beings are not only citizens of our own nation. We are also citizens of the planet Earth. We hold responsibility for the whole of the biosphere, and thus also for ourselves. All nations, and also the United Nations, should act with this awareness in mind. Our future depends on a sovereign that stands above nations, and above the United Nations. That sovereign is United Nature.

The United Nations comprises the nations of only one species. United Nature goes far beyond that. United Nature comprises all species.

United Nature exceeds all human nations in terms of duration, size, power, beauty and wisdom. United Nature can continue to exist without the nations of humankind, but human nations can continue to exist only on the basis of United Nature.

The ENSEARCH association, established by K. Kumarasivam in 1984, has worked successfully for harmonisation of business and the environment. Since 1993, ENSEARCH has also worked in international cooperation with the International Network for Environmental Management (INEM) as one of its members. The activities of ENSEARCH have been of great service to United Nature.

Let us strive all together to keep companies and nations, and ultimately also the United Nations, in harmony with United Nature.