

The dharma of ecology

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The concept and scope of ecology is ever-widening and becoming all encompassing. The ecological crises facing the world are basically an outward expression of inner crises in the mind and the spirit of human race. This species has changed landscapes on earth beyond recognition for its own 'good'. There is now a realization about interdependence between welfare ecology and welfare economics. Both have to be fortified by ecological and technological assets. Ecology is becoming a moral issue and has a deep interconnection with dharma. Proper interface among ecology, economy and technology will lead to welfare of biosphere of which human being is an integral part along with all other living creatures and non-living materials.

Ecology: A moral issue

The word *Dharma* enjoys universal acceptance having been included in all the standard English dictionaries. Now it is as much an English word as it is a Sanskrit word. It is derived from the Sanskrit root *dri* which means to 'uphold, sustain and support'. In simple language it means to 'hold together the different aspects and qualities of a being'. Associated with it are also righteousness, morality and duty. In short, it embodies all that is universally and eternally true. Without dharma nothing can make sense. Therefore, it is a part of the very nature of every thinking human being about all situations and problems (including ecology) that confront humanity at large. Dharma is, therefore, enshrined in any orderly life, society and environment. Implicit in it is that human beings have to control themselves so that their actions do not endanger the ecology which surrounds them, and on which they depend for sustenance all the time. Also implicit in dharma is that one should not inflict on surroundings and other living beings anything which is disagreeable to one's own self. Thus, there is a deep interconnectedness between dharma, ecology and environment that surround all forms of life all the time. In view of this, it is not surprising that ecology and environment are fast becoming moral issues and a moral responsibility of the human race which has the capability to think and foresee about the end-result of human actions. Nature (*Prakrati*) and human being (*Purush*) are two major elements recognized in the scriptures, which, if antagonistic, can bring doom and gloom to the Mother Earth.

Normally nature by itself does not degrade environment. If, however, natural cataclysmic changes happen, there may follow environmental degradation. Left to Nature, there starts a process of ecological rehabilitation

and reconstruction of the deteriorated habitats, and, more often, a new ecological regime sets in, which may even bring *status quo ante* in course of time, or even a new balanced ecological state. There is, therefore, tremendous resilience in Nature, because of the inherent capacity to reconstruct and rehabilitate. Nature is also not static, because there is an inherent capacity in it to change, refine and update. Those of us who visit natural habitats see these phenomena occurring all the time.

On the other hand, market forces, more often than not, depend on short-term gains and profits. These are oblivious of the responsibility of setting right the damage created by their short-sighted policies. Regrettably, at present making profits is the dharma of industry, but losses regarding generation of wastes/pollution is governmental and societal responsibility. Even at the individual level, eating food every day is a personal matter, but disposal of wastes therefrom is societal and/or governmental problem. Environment is the source of all raw materials which everyone is out to grab, but environment is also the sink for all wastes. A question arises as to how moral are such attitudes? Therefore, benefits and costs must become part of all environmentalism.

The world is not united on the question of sustainability of the Earth system including a concern about growing human numbers. However, most scientists are worried about the shape of things to come. They advocate understanding the basic questions scientifically and evolve technologies to combat the impending dangers. Earth being a finite entity, does not grow in size. Thus there is a need to combat realistically the problem of increasing human numbers, and their wants and desires, and qualitative and quantitative dwindling of resources and above all the very health of the Earth system.

The basic question is, can we raise the carrying capacity of the Earth system to cope with demands of *one* species (*Homo sapiens*) which happens to be the pinnacle of organic evolution! Using technological innovations, this species having spoiled the Mother Earth, no doubt has also the technical capability to stop endangering the health

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of the Earth system! This sounds paradoxical, but is nevertheless true.

The above are some inconvenient but real-life questions for which we have to find answers: sooner the better. Here then is a combined challenge for scientists, technologists, economists, sociologists, and those who deal with ethics of resource use. The basic question arises as to what will confer sustainability! Some thinkers (including this author) have attempted to answer this, but there is need for a more concerted attention of an expert group so that a necessary policy frame-work can be drawn for this purpose.

To save our planet with all its living and non-living manifestations and to ensure the diversity that has been its strength, there is an urgent need to adopt a Code, which may be called *The Dharma of Ecology*. Without following dharma nothing can make sense. Human being is a thinking species, therefore, dharma has to be part of its very nature including the ecology that surrounds it. Although this word is an oriental coinage, it is universal in approach and application. It is connected with human conduct and is enshrined in all religions of the world in one form or another (Khoshoo, unpublished). The important point is that all living and non-living resources in the life-support system are held in an intricate balance and have a value. These resources are to be held in trust. Thus human action should not inflict on other species (including other human beings) anything that is disagreeable to one's ownself including the surroundings of a particular individual be it plant, animal or micro-organism.

Some basic principles

The following are some basic principles underlying the dharma of ecology:

- Protecting and augmenting the regenerability of life-support system. This has to be accomplished by rationalized husbanding of all resources. Among other things, this would involve nurturing and protecting renewable resources; conserving non-renewable ones together with prolonging their life by recycling and reuse; avoiding waste; and benefiting from the economy of scale.
- Fair sharing of the resources, and means and products of development between and within nations of the world. This would reduce the disparity in resource-use, leading to a significant reduction in resource-use in the developed countries and increase in resource-use with little or no environmental degradation in the developing countries.
- Promoting awareness regarding the hidden social, economic and environmental costs of consumerism and overuse of resources with particular reference to its impact on the developing countries.
- Adopting willingly sustainability as a way of life by encouraging *frugality*, i.e. getting more from less, and *fraternity*, i.e. getting it in association with others.
- Meeting genuine societal needs and legitimate aspirations of the people by blending economic and environmental imperatives so as to alleviate poverty.
- Halting and then reversing the overuse of resources and armament build-up for ensuring sustainable environment, peace and security.

We need a firm commitment to the dharma of ecology at the individual level, because a society or a government is only an extension of an individual. The common threats to the long-range ecological security will bring nations of the world together. The Earth as a whole is also a Civilization Reserve not only for humankind but also for all the living beings: be it plants, animals or micro-organisms. Therefore, as citizens of the world, the human race must rise above the local and national ideologies and narrow economic systems, and owe allegiance to the life-support-system as a whole.

Global family

Never before, has there been a greater need for application of the concept of Global Family (*Vasudaiva-kutumbakam*) as is today. Environmental crises facing the world are actually an outward manifestation of an inner crisis in mind and spirit of human beings. Environment can no longer be treated as bits and pieces and dealing only with wildlife, ecodegradation, pollution and the likes of these. In the larger context, environment encompasses the whole well-being of all life on our planet. In the developing countries, poverty is the biggest polluter, a statement made by the late Indira Gandhi. Poverty degrades environment and thereby accelerates the pace of poverty in the developing countries. Their dire need is a survival strategy. On the contrary, in the developed world, it is the prosperity and unlimited greed which causes environmental degradation. Even though the developing countries harbour over 84% of the people, their contribution to ecodegradation and pollution is far less than that by 16% of the people in the developed countries, who consume nearly 80% of the world's resources.

If history of human being is traced ever since its origin in Africa, it is clear that, from the environmental and socio-economic points of view, there were three major societal epochs discernable: the Hunter-Gatherer Societies, followed by Agricultural Societies and the more recent Industrial Societies. We may now examine the broad contours of each of these.

Hunter and gatherer societies

The human being has been a hunter-gatherer for 99% of its time span. It is only during the last ten to twelve

thousand years that it has taken to agriculturization and industrialization. During the hunting-gathering stage, the human being was largely nomadic, and acted as one of the species in the concerned ecosystems. The environmental impact was strictly local and small, and due to the natural process of eco-repair, ultimately there was little or no damage. Hunter-gatherers have performed the biggest trial-and-error experiments for the humanity as a whole. The latter has to be ever-grateful to the former.

Agricultural societies

The early agricultural societies domesticated livestock for food, clothing and for carrying loads. They also began selecting and cultivating plants as food in 12 centers of origin and domestication in the world, one of which is in India. Except for some micro-organisms, humankind has not added to the list, and has been using the same animals and plants that were selected and domesticated by its primitive ancestors. However, with the invention of the plough and the wheel, agricultural societies were involved increasingly in clearing forests for cultivating crops, raising livestock and making dwellings. With rather assured food supply, population began to increase and food supply had to keep pace with it. Thus irrigation helped in settled and enhanced agriculture in turn leading to significant increase in population and permanent settlements in the form of villages, some of which in the course of time became towns. Some of the towns grew into cities.

Together all these factors resulted in the establishment of civilizations. Associated with the latter was enhanced need for food, leading to enhanced rate of degradation of forest cover, and considerable increase in irrigation systems. The latter began to become clogged due to siltation and associated environment and human health problems followed.

Since, by now, population had begun to increase and agriculture had extended considerably, there was need for labour both for agricultural and desilting operations. This gave birth to a landed class who owned land, and a landless slave or labour class who put in hard work. The small and localized environmental impacts gave way to larger impacts on account of forest clearances for agricultural purposes and grasslands for domesticated cattle. The human being still depended on its muscle power and that of the domesticated animals.

Next came the *Agriculture-based Urban Societies*, which led to further increase in population. Moreover, while some villages produced food, the larger villages grew into towns and larger towns into cities. In the latter case, people depended on food produced in the villages. In their spare time in cities, people took to small industries like tool-making, weaving, pottery, hand-made goods, etc. Six such contemporary civilizations appeared on the Earth; these were Nile Valley, Babylonian, Greek &

Roman, Indus Valley, Huang Ho Valley, and Mayan & Aztec. While these civilizations contributed materially to literature, art, music, science, etc., there were two classes in each: the *haves*, who constituted a small section but had large assets and were powerful; and the *have nots*, who were a large section, with little or no assets and were powerless being involved in producing food and doing all the dirty work and rendering services all the time.

Earlier, fights between groups took place for possession of more and more livestock, but now fights began about the ownership of land. This led to the springing up of leaders with armies of followers who controlled large areas. Wars began to be fought for possession and control of land and ecological assets. There was scant respect for assets like water, forests and land which were poorly managed and overgrazed, resulting in soil erosion, blockage of irrigation systems and increased number of slaves to clear the silt. The cities had a lot of waste generated by people, leading to infectious diseases and parasitic attacks. Habitats began to be altered beyond their carrying capacity, and, for the first time, there was significant ecodegradation. In this process, some empires became weak and wars became frequent. All this resulted in further degradation of the environment. Such ecological, economic and social reasons led to the collapse of the six civilizations enumerated earlier. In short, the prime reason for the collapse of civilizations has been disrespect for forests in particular and environment in general.

Industrial societies

Starting from England, in the Western Europe was born the Industrial Revolution, with many inventions involving coal-based steam engine systems followed by the internal combustion engines. Thereafter, horse carriages and wind-powered ships were replaced by engines using fossil fuels. This was the period of European expansionism into Asia, Africa and the Americas. In this process, the indigenous peoples were either largely annihilated or subjugated.

Even agriculture now began to be based on coal and oil in place of human and animal energy. Production increased and there was migration of former farmers to towns and cities. They now took jobs in mechanized factories. With the two world wars, fought in the 20th century, many inventions were made in the area of science and technology. After the wars, these led to mass production of useful products at affordable prices and a 'high' standard of living with higher GNP per capita. With the application of modern science and technology, there have been major gains in the yield potential of the domesticates. There also was improved life expectancy, better living conditions, education and old age security.

The environmental impacts of the industrialized societies were tremendous, be it agriculture, industry, mining, etc. All these led to degradation of land, forests,

water, biodiversity and air through the release of noxious chemicals and cutting down of forests. Most cities became twin cities, the mega-component with all the facilities, and the slum-component where ecological refugees live. Most cities in the world are still stuck with such a situation. There also developed the regional problems of acidification and global build-up of carbon dioxide and depletion of ozone.

In fact, industrialization has been a mixed blessing. There was considerable economic growth with per capita increase in GNP and overall standard of living. However, all this progress and benefits have been at tremendous environmental costs. Furthermore, for some time past, lifestyles in the developed countries have also affected the resource base in the developing countries. The classical cases are that in return for food and financial aid by the developed to the developing countries, the latter destroyed their forests by supplying timber, growing cash crops and producing cheap meat for consumption in the developed world. In this regard the well-known case is the *Hamburger Connection* where Norman Myers showed that 40% of the forest cover in Central America had been destroyed for making pasture land available so as to supply beef at cheap rates to North America. The present-day cost of beef does not reflect the *true cost* of its production because huge environmental costs are not added to it. This example stirred the conscience of the whole world. The developing countries also use obsolete and dirty technology supplied by the developed countries, thus degrading the environment further. In return for financial aid, some developing countries have even offered sites for burying and dumping noxious wastes. All such aids are in fact *concealed compulsions* and, in practice, amount to acts that threaten the ecological security of the poor developing countries.

Thus, in the developed countries the causes of eco-degradation and pollution are their prosperity and greed, while in the developing countries the causes are poverty and need. In the latter case, it is matter of very survival. The most profound aspect of the industrial era has been the arrogance of humankind to consider itself the most superior organism in the biosphere, and a growing feeling that everything is subordinate to human needs, and a feeling of being a co-creator.

Today the world is rather divided into two camps: a few (26) developed countries mostly located in the temperate regions of the world and a large number (107) of developing ones in the tropical, subtropical and hot temperate belt. The former consume far more resources (over 80%) than the latter. The underlying feeling of undue exploitation of resources by the developed countries exists in the developing ones. This causes tension and friction. However, in the recent years, the developed countries, confined mostly to the temperate regions, have realized the criticality of tropics and subtropics for their own survival and well-being. This has led to a trend to swap

the debts of the countries in the tropics, for conservation of tropical forests. It is indeed a healthy sign, because environmental interconnectedness and interdependence between the rich and the poor nations is becoming increasingly clear. No nation however rich or poor is safe if its environment deteriorates significantly.

Environmental problems are thus the result of interaction between complex and poorly understood social, economic, technological and political factors. However, it is also clear that although developing countries suffer from problems of over population and lack of resources, the net quantum of eco-degradation and pollution in their case is far less than the less-populated developed countries. Furthermore, pollution in the developing countries is mostly biodegradable, while that in the developed countries is mostly non-degradable.

Ecological ethics

In the coming years it is certain that ecological ethics will get added importance. The Western religions (Judeo-Christianity, Islam and Zoroastrianism) have by and large looked at the relationship between humankind and Nature with a measure of arrogance and an underlying co-creator attitude: A notable exception being St. Francis of Assisi. The result has been *conflict* with Nature. On the other hand, the Eastern religions (Hinduism, Buddhism, Jainism, Sikhism and Taoism) have overwhelmingly viewed environment and Nature with reverence and an underlying partnership, leading to *harmony* with Nature. Most orientalist start their day with prayers to Nature and the bounties it offers. The two components Nature (*Prakrati*) and humankind (*Purush*) are partners which must work harmoniously.

A lot of useful literature is now emanating from the western world about the ethics of resource use because, more than the east, the west has realized that their present-day pattern of development is not sustainable. They are eager to hear the views of orientalist about the environment, because this subject has been a part of ethos of the latter from time immemorial.

Connected with the subject of ecological ethics is the fact that the human race has had a common origin (in East Africa) and also a common past. Then there followed divergence, and human being colonized all the continents because it was the first intelligent, inquisitive and thinking animal (Figure 1). In due course of time, there followed population explosion, multiplication of needs, undue demands on and progressive destruction of components of the Earth system (namely: atmo-, hydro-, litho-, and biosphere including biodiversity). The net result has been that the Earth system as a whole became progressively endangered: some of its parts more than the other parts.

Then there began a global realization about the impending dangers associated with serious environmental

deterioration. Then came the Stockholm Conference (1972), followed by the Rio Conference (1992), and a plethora of other conferences. In this process, humanity as a whole jumped from *Common Origin* to the concept of *Common Future* (Figure 1). There has been talk of globality of environment, and connectivity between local and global environments. Yet there are no worthwhile global or regional strategies or even national strategies for achieving sustainability. Therefore, while *Common Origin* is a fact, *Common Future* is still a myth (Figure 1). Some years ago, M. S. Swaminathan raised a very pertinent question: How can there be a common future without a common present? The latter is still an open question and an enigma! Should not humanity do something tangible about it? This is a moot question which needs to be addressed to very seriously.

The only option left to the human race is to not only work out solutions to local problems, but also to rise above the local issues and think about the repercussions of these at the national, regional and global levels. Furthermore, it has to work over-time to give all such strategies a practical shape. It is indeed a two-way traffic. Understanding the dynamics of this two-way traffic will actually lead us towards real sustainability in development.

Apostles of ecological dharma

Regrettably during the 20th century, the human race has seen more tormenters (at least four) but only one benefactor (Mahatma Gandhi). In recent times, three Indians who, in every sense, preached and practised the *Dharma of Ecology* are: Mahatma Gandhi, Vinoba Bhave and Mother Teresa. The former two were Indians by birth but the last one was by her voluntary adoption. In fact all the three belonged to the whole humanity. The first two

were devout Hindus, the last a devout Christian. But all the three followed identical paths and reached similar conclusions: to care for the poor, the dispossessed, the deprived and the destitute or, as M. S. Swaminathan has said in a different context: *reaching the hitherto unreached*. Thus, it was sheer simplicity that these three great souls wore. Here then are ideals in sustainability for the whole humanity.

The lessons one draws from the past experience are loud and clear and there is considerable realization about the following:

- Earth is a finite system, both in resources and in its carrying capacity;
- Future economic growth cannot be sustainable if it is at the expense of long-range ecological security;
- Environmental insecurity ultimately leads to economic, social and political insecurity;
- Sustainable development for intra- and intergenerational human well-being has now to be an integral part of the future composite world culture; and
- Sustainability in development is a global concept and every living being, as a member of the World Family (*Vasudaivakutumbakam*), has a role to play.

There is an urgent need to translate these lessons into reality through the *Dharma of Ecology*. While we must understand scientific and technical complexities of nature, we must not do so with arrogance of *conquering* nature, but *working in close harmony* with it. We must develop a good measure of reverence for nature for the vast bounties it provides. In this connection, we must also learn from the tribal societies, which have developed an approach of harmony with nature. This can still be seen in the interiors of the Andaman and Nicobar Islands and Amazonian forests.

If there is any one thing that is going to bring nations of the world together, it is the *common threat* to our long-

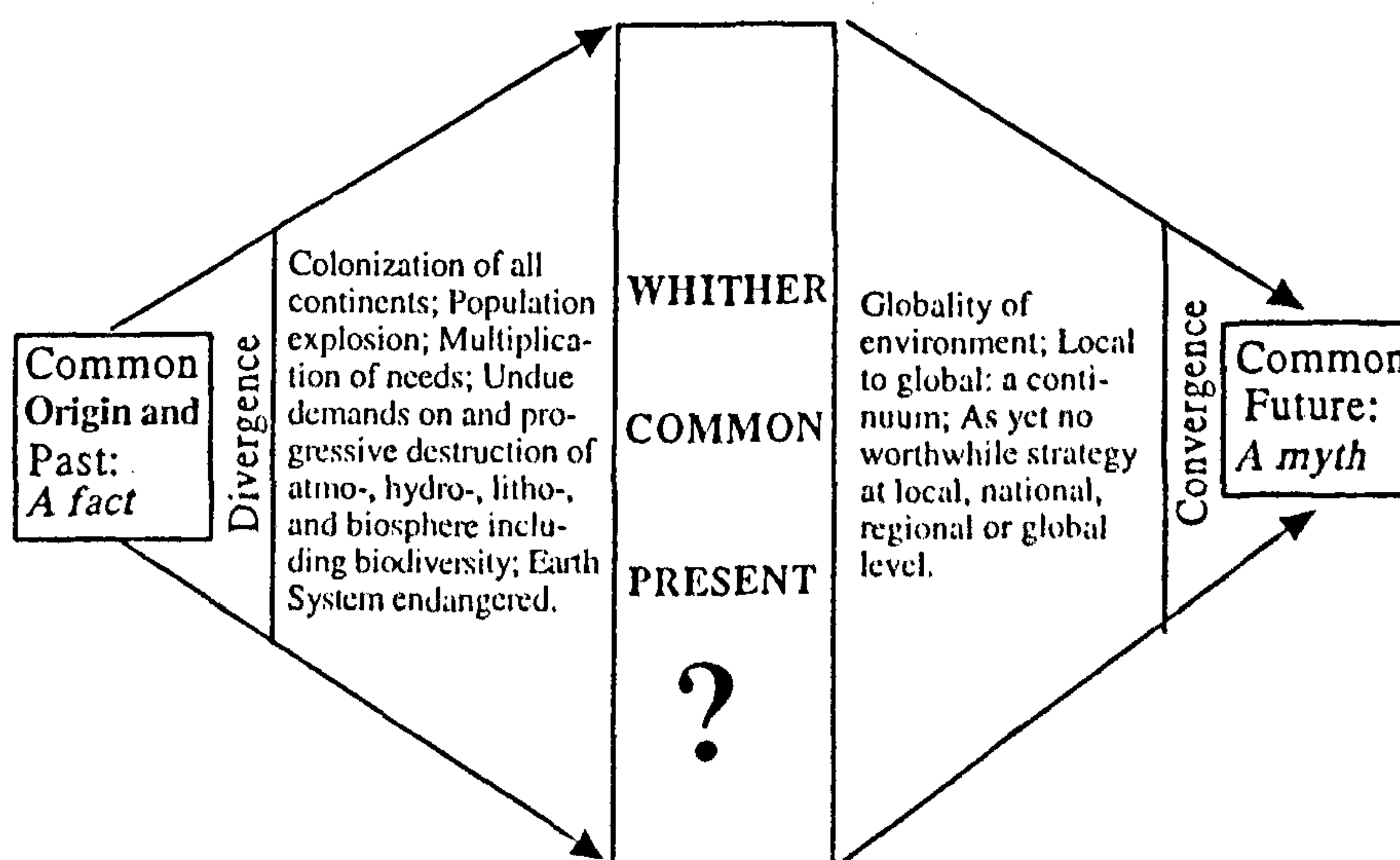


Figure 1. Transition from common origin to common future.

range ecological security. Therefore, before we talk of common future, there is need for common concerns, approaches, strategies and actions for our *common present*. Thus, for our sustainable future, we have to move towards globality on the one hand so as to correct the environmental follies, particularly of the industrial countries; and on the other hand, we need to meet common global threats. There is need to develop a culture/ethics/code for Ecological Dharma at all levels starting from the individual up to a country or region and the entire globe so as to practice the cult of sustainability in development. It is only then that we will have a situation as put by Rene Dubos: '*think globally but act locally*'.

A basic question arises: Are we moving towards a sustainable society? This indeed is a major challenge as also an opportunity before the entire human race. In India, if we go on the way we have been so far, on 1 January 2001 like today, centuries will continue to co-exist. We will continue to have a subsistence India of a large number of poor and dispossessed toilers and plodders who live in medieval times, and an affluent India of a small number of people who are jet-set and wealthy. The latter may be poised to enter the 21st century with a bang. How soon we take even the preliminary steps to bridge the vast gap between the large but powerless subsistence and the small but powerful affluent India, will actually determine whether we can make it to a sustainable society, where we have environmental harmony, economic efficiency, resource conservation, gender equality, equity with social justice, and local self-reliance. To practice this, we need to draw inspiration from Mahatma Gandhi, Vinoba Bhave, and Mother Teresa.

Future prospects: Welfare ecology

Thanks to Dhrubajyoti Ghosh an all-encompassing term, *welfare ecology*, has now been introduced in ecological literature (*Selected Essays on Welfare Ecology*, Centre for Sustainable Living, Calcutta). This is a sequel to Amartya Sen's welfare economics, who, for the first time, talked of economics of the weak, the dispossessed, the deprived and the destitute which constitute the dumb majority in any developing country. The strength of a chain is its weakest link, and, therefore the poorer section in any society must receive special attention. Once the teeming millions come out of the morass of poverty, penury, illiteracy, hunger and dire want, then only a developing country can progress as a whole. Therefore, welfare economics has to be backed by welfare ecology. A basic premise is that economy springs from the use of ecological assets (atmosphere, hydrosphere, lithosphere and biosphere) coupled with human ingenuity in the form of technology (Figure 2). It may, however, be pointed out that technology is not only a human attribute but many other organisms make use of it intuitively. For instance, one has

only to have a mind and an eye to see how meticulously and efficiently bees are organized socially and build their hives, how birds build nests, or how a beaver (an amphibious broad-tailed soft-furred rodent) builds a dam in a gushing stream of cold water. A bee-hive is an example of one of the most perfect and articulated organization. Each bee knows its job which it does selflessly. These are marvels of technology, division of labour and perfect coordination and articulation, in no way less than human ingenuity, if not better because there is no element of personal greed. Thus welfare economy and welfare ecology are mutually supportive. Gone is the time when ecology meant only study of plants and animals in their habitats, more often such discourses included human being very marginally.

Human ecology is now an important subject. There is a deep interconnection between human needs, wants and aspirations which in the wealthier sections of any society are in reality unlimited. Therefore, there is an urgent need for the human race to address itself to a serious question like: what is *enough* for a simple but comfortable lifestyle avoiding ostentatious and vulgar show of wealth which causes undue stress on environment and waste of materials? Welfare ecology is relevant to all living organisms including human being. It embraces the whole biota, because the health of whole will determine the health of the part, and vice-versa. Therefore, welfare ecology has a very wide meaning and application. Inherent in it is the basic minimal requirement for a simple and comfortable lifestyle which can be permanent with no long- or short-range ill-effects on the environment in which an organism lives. Sustainability will become a reality only when one lives on the mean annual increment (MAI) of the basic ecological-economic capital.

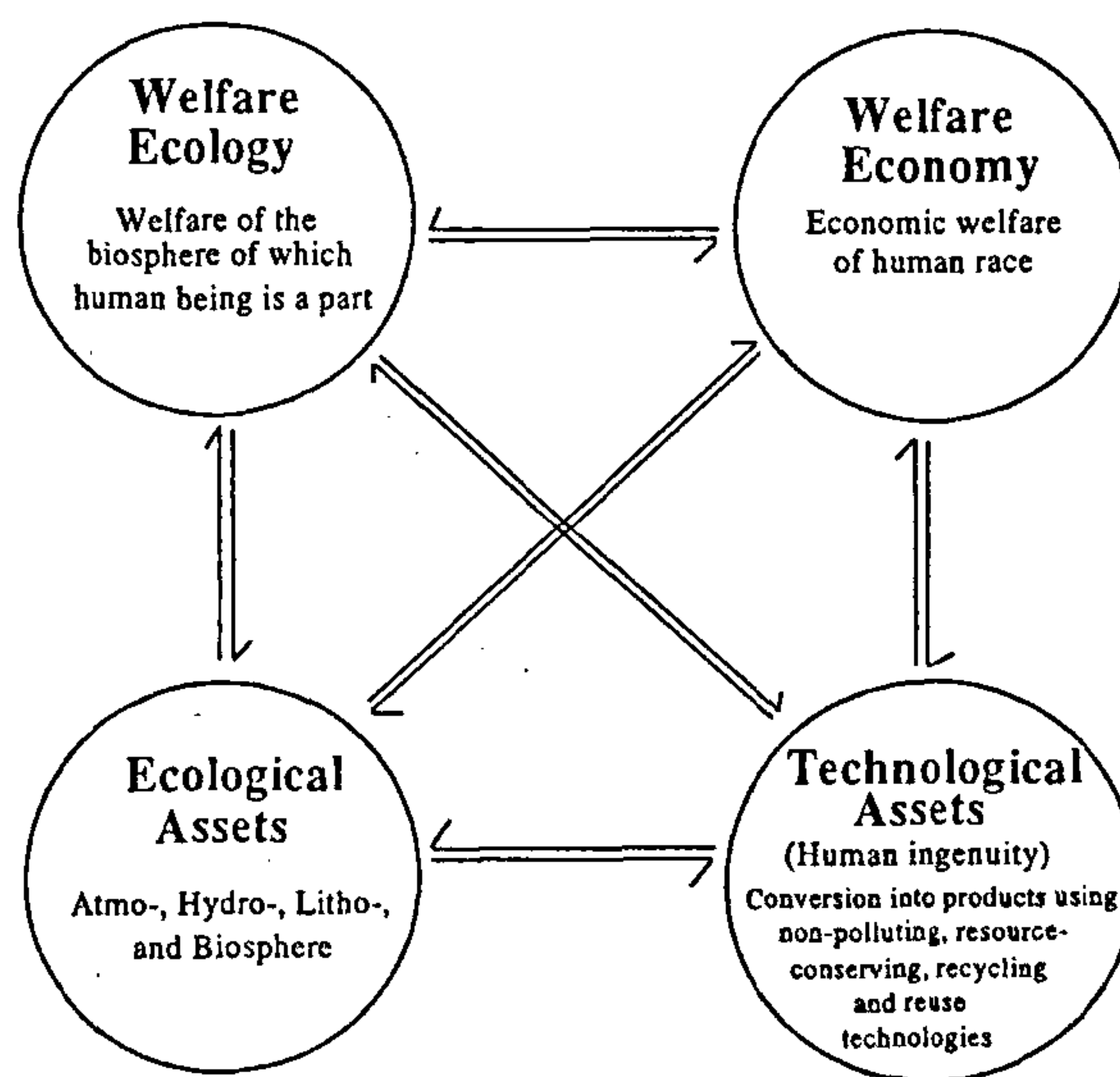


Figure 2. Interrelationship between welfare economics, welfare ecology, and ecological and technological assets.

Thus there is a deep interconnection, interdependence and inter-relatedness between welfare economy and welfare ecology. The two are mutually supportive. On such a mutuality depends the future of humankind on a sustainable basis. Proper interface between ecology, economy and technology, will lead to welfare of biosphere of which human being is an integral part along with all other living creatures and non-living materials. We need to face ecological challenges of the 21st century with the joint message of welfare ecology backed by welfare economics and vice versa.

Economics, energy and ecology are also interrelated, and one of the major causes behind India's environmental problems can be traced to their bad management. At present only economics plays an overriding role even when ecology is actually regarded as biological economics and energy as a currency of life. As of now three major questions confront humanity. These are: How can the huge ecological deficit already with us be wiped out without adding to the present-day ecological problems? How can the future development be made sustainable? How can aims and objectives of environment and economic development be reconciled and be unified?

Conclusions

Although a Sanskrit word, dharma is now universally accepted, it has a deep interface with ecology. Among the important findings of this century is the fact that the Earth is the only planet in our planetary system that supports life as we know. It is our only home. All the living beings (plants, animals and micro-organisms) on Mother Earth constitute one Global Family. Furthermore, the 20th century has been one of discovery and expansion of human activities, resulting also in considerable environmental destruction. On account of this, the human race by its action has been responsible for extinction of some of the life forms. A question arises whether the next century will be one of continued and rapid environmental destruction, or of environmental reconstruction so as to save as many life forms as possible and the Planet Earth as a whole? Humankind has to make up its mind about becoming more humane and less selfish. There is an urgent need to ensure continued regenerability of the life support systems, to be followed by fair-sharing of resources and their products, and practising frugality, fraternity and sustainability. Adopting such a course of action would help answering a basic question: how much

is *enough* for a simple need-based comfortable lifestyle? In turn it would also help stall the ecological decline that has already set in, which if unheeded would in turn lead to economic decline followed by social disintegration. History has been a witness to such a course of events. Before any civil society talks about common future, it has to ensure a sustainable present. To attain the latter would need inputs from all sciences, technology, socio-economics, ethics and law. There is, therefore, a need for an in-depth thinking on these issues.

We need to draw lessons from the decline of once flourishing civilizations in the medieval times, and avoid disrespect for Nature at all costs. We also need to conserve not only the natural heritage, but also the intellectual heritage. In the natural heritage is included the Mother Earth itself with all the biomes, ecosystems and populations of all living species (including the human being). In the intellectual heritage is included all that has been crafted and created by human genius for the good, the benefit and the well-being of humanity at large. It would also include human settlements, science and technology, history, culture, religion, philosophy, art, literature, music and dance, handicrafts, myths, etc.

The civil society needs to be committed to make innovations in development possible and thus ensure a better life for the generations to follow and help in sharing and caring. Herein lies a dual responsibility for each one of us: one to the biosphere and the other to humanity and all life forms on a collective basis. In short, there is need to guarantee a healthy Earth by itself, and the life on Earth in all its manifestations.

To conclude, sustainability is not only a scientific, technological, social, and economic issue, it also has major moral and ethical dimensions. Welfare economics backed by welfare ecology together hold the key to human survival on a sustainable basis. Therefore, determined efforts have to be made to avoid crossing the thin line dividing sustainability and unsustainability. To achieve this, there is also a need for evolving a unique 'technology' for the 'inner' development of human kind itself so that misuse of resources and creation of unsustainability is avoided. To the present author, these are some of the basic and *dharmic* responsibilities of humanity as a whole.

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