INTERPRETATIONS

CULTURE AND THE SUSTAINABILITY OF THE GLOBAL SYSTEM

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The values and associated behaviors of the dominant culture of the contemporary world gave rise to a globally extended system that is not sustainable in its present form. If a cataclysmic breakdown is to be averted, the influential culture that shapes today's world must change. Humanity can no longer afford to be dominated by a narrowly materialist and manipulative culture focused on ego-centered, company-centered, or nation-centered short-term benefit, with no regard to the wider system that frames existence on this planet. Consciously moving toward a harmonious system of cooperative societies focused on the shared objective of sustaining the systems of life on the planet is an urgent necessity. To this end a mutation is needed in the cultures of the contemporary world, so as to create the values and aspirations that would bring together today's individually diverse and largely self-centered societies in the shared mission of ensuring the sustainability of the global system of humanity in the framework of the biosphere.

The global system is highly diverse today, but it is insufficiently coordinated. Creating a higher level of unity within its diversity is intrinsically feasible: it calls for system-maintaining cooperation among the diverse societies that make up the system.

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The Cultural Roots of the Unsustainability of the Contemporary World

Today's socioeconomic and ecological world system is structurally unstable and dynamically unsustainable. This condition has been created by practices oriented by the values and perceptions of a dominant layer of society. These values and perceptions have now become largely obsolete. For example:

Nature is inexhaustible. The long-standing belief that the Earth is an inexhaustible source of resources and an inexhaustible sink of wastes leads to the over-mining of natural resources and overloading of the biosphere's regenerative cycles.

The biosphere is a mechanism. The belief that we can engineer the biosphere like a building or a bridge is producing a plethora of unforeseen and vexing side-effects, such as the destruction of natural balances and the disappearance of myriad living species.

Life is a struggle where the fittest survives. This application of Darwin's theory of natural selection to society is mistaken in principle (Darwin did not mean by the 'fit-

test' the strongest and most aggressive, but the most adaptive and cooperative), and it is dangerous: it produces a growing gap between rich and poor, and legitimates the use of force on the premise that the possession of power is the natural attribute of a species that is fit to survive.

The market distributes benefits. The free market, governed by Adam Smith's principle of the 'invisible hand', is believed to distribute the benefits of economic activity in society. However, the poverty and marginalization of nearly half of the world population indicates that under current conditions trust in this belief is unfounded. The invisible hand does not operate: the holders of wealth and power garner for themselves a disproportionate share of the material benefits resulting from economic activity.

Some of the current beliefs produce paradoxical conditions.

- Millions are suffering from overeating and obesity, while a thousand million go hungry.
- Six million children die annually of starvation, and 155 million are overweight.
- There are millions of intelligent women ready to play a responsible role in society, but they do not get a fair chance in education, business, politics, and civic life.
- In order to save on the cost of labor, millions are put out of work, wasting human capital that would be essential to tackle the social, economic, and environmental problems now faced by humanity.
- Vast herds of animals are brought into the world for the sole purpose of being slaughtered for meat, something that, apart from its questionable ethical and health implications, is wasting an enormous amount of water and grain, resources urgently needed to ensure nutrition for human populations.
- The problems of the human community call for long-term solutions, but the criterion of success in the business world is the bottom line in annual or semi-annual corporate profit-and-loss statements.
- The planet is bathed in solar energy, and technologies are on-line to tap the energy of wind, tides, hot subsurface rocks, biomass, and animal waste and side-products, yet the world continues to run on polluting and finite fossil fuels and inherently dangerous nuclear power.
- Hi-tech weapons that are more dangerous than the conflicts they are intended to cope with are developed and stockpiled at vast investment of money and human and natural resources.
- The ineffectiveness of military force to achieve economic and political objectives has been demonstrated over and over again, yet the world's governments spend over $1.2 trillion dollars a year on arms, wars and military establishments, and similar amounts on empire-building objectives often disguised as projects of national defense and homeland security.

Such values and beliefs, and the conditions, to which they give rise, produce multiple strands and forms of unsustainability. They are manifest in the contemporary world in the sphere of society, in that of the economy, as well as in the domain of the ecology.

The Strands of Unsustainability

1. Unsustainable conditions in society

In the rich countries job security is disappearing, competition is intensifying, and family life is suffering. More and more men and women find satisfaction and companion-

ship outside rather than within the home. And in the home, many of the functions of family life are atrophying, taken over by outside interest groups. Child rearing is increasingly entrusted to kindergartens and company or community day-care centers. The provision of daily nourishment is shifting from the family kitchen to supermarkets, prepared food industries and fast food chains. Leisure-time activities are colored by the marketing and public relations campaigns of commercial enterprises. Children's media exposure to TV, video games, and 'adult' themes is increasing, and it motivates violent and sexually exploitative behavior. In the United States the rate for first marriages ending in divorce is fifty percent, and about forty percent of children grow up in single-parent families for at least part of their childhood.

Social structures are breaking down in both the rich and the poor countries. In poor countries the struggle for economic survival destroys the traditional extended family. Women are extensively exploited, given menial jobs for low pay; often they are obliged to leave the home in search of work. Fewer and fewer women have remunerated jobs and more and more are forced to make ends meet in the socially and economically marginal informal sector. According to the International Labour Organization, fifty million children, for the most part in Africa, Asia, and Latin America, are employed for a pittance in factories, mines, and on the land. In some countries destitute children are recruited as soldiers and forced into prostitution, or are forced to venture into the streets as beggars.

2. Unsustainability in the economy

The human community is economically polarized: there is a large and in some regions still growing gap between diverse layers of population. The gap depresses the quality of life of hundreds of millions, and reduces the chances of survival of the poorest and most severely marginalized populations.

a) Wealth distribution. Wealth and income differences have reached staggering proportions. The combined wealth of the world's billionaires equals the income of three billion people, nearly half of the world's population. Eighty percent of the global domestic product belongs to one billion, and the remaining twenty percent is shared by six billion.

Poverty has not diminished in absolute numbers. In the poorest countries seventy-eight percent of the urban population subsists under life-threatening circumstances – one in three urban dwellers lives in slums, shanty towns, and urban ghettoes, and nearly one billion are classified as slum-dwellers. Of the seven billion people who now share the planet, 1.4 billion subsist on the equivalent of less than 1.25 dollars a day and an additional 1.6 billion live on less than 2.50 dollars.

b) Resource use. The rich-poor gap shows up in food and energy consumption as well as in the load placed on natural resources. People in North America, Western Europe, and Japan consume 140 per cent of their daily caloric requirement, while populations in countries such as Madagascar, Guyana, and Laos live on 70 per cent. The average amount of commercial electrical energy consumed by the Africans is half a kilowatt-hour (kWh) per person; the corresponding average for the Asians and Latin Americans is 2 to 3 kWh, and for the Americans, Europeans, Australians, and Japanese it is 8 kWh. The average American burns five tons of fossil fuel per year, in contrast with the 2.9 tons of the average German and places twice the environmental load of

the average Swede on the planet, three times that of the Italian, thirteen times the Brazilian, thirty-five times the Indian, and two hundred and eighty times the Haitian.

Reducing excessive resource use is made urgent by the rapid growth of the population. World population has increased from about five billion twenty-two years ago to about seven billion today. Today, for the first time in history, in regard to a number of natural resources the rising curve of human demand exceeds the descending curve of natural supply. Since the end of World War II, more of the planet's resources have been consumed than in all of history until then. Global consumption is nearing, and in some cases has already surpassed, planetary maxima. The production of oil, fish, lumber, and other major resources has already peaked; forty percent of the world's coral reefs are gone, and annually about 23 million acres of forest are lost. The per capita availability of land for meeting human requirements has shrunk from 19.5 acres per person in 1900 to less than 5 acres today. Ecologists also speak of 'peak water', since the quantity of water suited for human use in the biosphere is rapidly diminishing.

The Fourth *Global Environment Outlook* of the UN Environment Programme estimated that satisfying the average resource demand in the world calls for the use of around 8.9 acres of land per person. (This figure masks great disparities between rich and poor economies: resource availability drops to 1.23 acres in the poorest countries such as Bangladesh, and mounts to 25.5 acres in the United States and the oil-rich Arab states.) However, 8.9 acres is more than twice the amount of land that could respond to human use on a sustainable basis: the sustainable 'Earth-share' of every man, woman and child on the planet is 4.2 acres (UNEP n.d.).

c) The financial system. The precarious structure of the world's financial system is a major factor in the unsustainability of the world's economy. Instability in the financial sector is not a new phenomenon, but it was not widely recognized prior to the credit crunch of 2008. The bubble that burst at that time has led to the loss of over two million jobs in the United States alone, and resulted in a global reduction of wealth estimated at 2.8 trillion dollars.

The structural unsustainability of the world's financial system is not uniquely due to the creation and burst of speculative bubbles: it is rooted in the imbalance of international trade. Already in 2005, the IMF's *Economic Outlook* (IMF 2005) noted that it is no longer a question of *whether* the world's economies will adjust, only *how* they will adjust. If measures are further delayed, the adjustment could be 'abrupt', with hazardous consequences for global trade, economic development, and international security.

3. Unsustainability in the ecology

Social, economic, and financial unsustainability is exacerbated by damages produced by human activity in the environment, resulting in a diminution of the resources effectively available for social and industrial use.

a) Water. The amount of water available for per capita consumption is diminishing. In 1950 there was a potential reserve of nearly 17,000 m^3 of freshwater for every person then living. Since then the rate of water withdrawal has been more than double the rate of population growth, and in consequence in 1999 the per capita world water reserves decreased to 7,300 m^3. Today about one-third of the world's population does not have access to adequate supplies of clean water, and by 2025 two-thirds of the population will live under conditions of critical water scarcity. By then there may be only 4,800 m^3 of water reserves per person.

b) Productive land. There is a progressive loss of productive land. The Food and Agriculture Organization estimates that there are 7,490 million acres of high quality cropland available globally, seventy-one percent of it in the developing world. This quantity is decreasing due to soil erosion, destructuring, compaction, impoverishment, excessive desiccation, accumulation of toxic salts, leaching of nutritious elements, and inorganic and organic pollution owing to urban and industrial wastes.

Worldwide, 12 to 17 million acres of cropland are lost per year. At this rate 741 million acres will be lost by mid-century, leaving 6.67 billion acres to support 8 to 9 billion people. (This figure may still be overly optimistic, since the amount of available land will be further reduced by flooding due to a progressive rise in sea levels.) The remaining 0.74 acres of productive land could only produce food at the bare subsistence level.

c) Air. Changes in the chemical composition of the atmosphere reduce the availability of air capable of supporting adequate health levels. Since the middle of the nineteenth century oxygen has decreased mainly due to the burning of coal, and it now dips to nineteen percent of total volume over impacted areas and twelve to seventeen percent over major cities. At six or seven percent of total volume, life can no longer be sustained. At the same time, the share of greenhouse gases is growing. Two hundred years of burning fossil fuels and cutting down large tracts of forest has increased the atmosphere's carbon dioxide content from about 280 parts per million to over 350 parts per million.

At the same time, carbon dioxide is accumulating in the atmosphere. During the 20^{th} century human activity has injected one terraton of CO_2 into the biosphere, and is currently injecting another terraton in less than two decades. The speed with which carbon dioxide is introduced makes it impossible for natural ecosystems to adjust. In the oceans, the explosive growth of CO_2 at the surface makes the water too acid for the survival of shell-forming organisms, the basis of the marine chain of life. On land, carbon dioxide absorption is reduced by the destruction of the ecosystems that had previously absorbed this gas. As much as 40 per cent of the world's forest cover has disappeared, due to acid rain, urban sprawl, and the injection of a variety of toxins into the soil.

The influx of greenhouse gases generated by human activity is matched by an influx from nature that is also largely catalyzed by human activity: the warming of the atmosphere. In Siberia a million square kilometer area of permafrost formed 11,000 years ago at the end of the last ice age is now melting. The area, the world's largest peat bog, is releasing as much methane into the atmosphere as all of human activity put together.

d) Global warming. The cumulative effect of the changes induced by human activity produces a greenhouse effect.

In recent years average temperatures have risen significantly, and the warming trend is accelerating. Conservative elements claim that global warming is due primarily to natural causes, at the most exacerbated by human activity: a new cycle in the fusion-processes that generate heat in the Sun sends an increasing amount of solar radiation to Earth, and this heats up the atmosphere. However, the injection of carbon dioxide, together with methane and other greenhouse gases into the atmosphere is likely to be a significant factor in creating and accelerating the global warming trend. The historical record of the past million years shows that the amount of CO_2 in the air correlates with variations in temperature: even if with some time delay, more carbon dioxide correlates

with higher temperatures. A humanly generated shield in the upper atmosphere is now preventing heat generated at the surface from escaping into surrounding space.

Climate models show that even relatively minor changes in the composition of the atmosphere can produce major effects, including widespread harvest failures, water shortages, increased spread of diseases, the rise of the sea level, and the die-out of large tracts of forest. Global warming is already producing persistent drought in various parts of the world. In Northern China, for example, prolonged aridity has prompted the government to generate rainfall through artificial cloud-seeding.

By reducing the yield of productive lands, drought is creating a global food shortage. It is exacerbated by falling world food reserves: the current stocks are not sufficient to cover the needs of the newly food-deficit countries.

The Need for Cultural Mutation

The practices that characterize human activity have their roots in the dominant values and perceptions of people. These values and perceptions are now obsolete. Allowing them to inspire action is strongly counterproductive; it produces growing crises and could issue in a world-scale breakdown.

The values and practices that inspire the dominant practices of the contemporary world need to change. We need a conscious and well focused cultural mutation.

The needed cultural mutation does not require people and societies to reject and discard their cultural heritage or disown their cultural preferences. It only requires a positive change in regard to those values and beliefs that reduce the sustainability of the system that frames human life on the planet.

Diversity is a positive attribute of the world system; a significant reduction would impair its resilience. Monocultures are inherently unstable, in society the same as in nature. Diversity, however, needs to be balanced by unity. Viable systems manifest unity within diversity: their diverse parts or elements are cooperatively focused on the attainment of shared goals, above all, that ensuring the continued persistence of the whole system.

Ground Rules for Harmonizing the Diversity of the Contemporary World

The ground rule for achieving a higher level of unity in the contemporary world is simple and basic: maintain the diversity of the cultures and societies that compose the system, but join it with a higher level of harmony among them. A global-level harmonization of the system's diverse elements would allow the pursuit of a variety of goals and objectives as long as they do not damage that vital balances and processes that maintain the whole system. Achieving a higher level of dynamic stability in the world system is in the best interest of all people and societies, since without an adequate level of viability in the whole system, the viability of its parts is compromised.

The basic ground rule is both simple and evident:

Allow diversity to flourish among the cultures and societies that make up the contemporary socioeconomic and ecological world system, but do not allow this diversity to damage or destroy the harmony required to ensure the overall system's viability.

Additional precepts are required to ensure the effective application of the basic rule:

– Every society has an equal right to access and use the resources of the planet, but it also has equal responsibility to sustain the world system on the planet.

– Every society is free to live in accordance with the values and beliefs that accord with its historical heritage and its current wisdom, as long as these values and beliefs do not result in action that constrains the freedom of other societies to live in accordance with their own values and beliefs.

– All societies have a legitimate obligation to safeguard the freedom, physical security, and territorial integrity of their population, and to this end maintain an armed force, but no society has the right to produce and stockpile weapons that threaten the freedom, physical security, and territorial integrity of any other society.

– All societies forego technologies that waste essential resources, produce dangerous levels of pollution, or pose a threat to the health and wellbeing of their own people and the people of other societies.

Embracing these and related ground-rules would allow the world system to achieve the unity required to balance its diversity and thereby create and sustain conditions necessary to ensure the flowering of human life and wellbeing. Motivating and promoting the cultural mutation that would inspire and motivate this vital development is the moral obligation of all conscious and rational members of the human family.

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