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NATURE AND ECONOMIC DEVELOPMENT

By Siegfried G. Karsten*

Economic processes deal with the transformation of the environment, i.e., of natural resources into consumable goods and services. In this context, economics provides the basis of civilization if not of life itself. Hence, economics as a science must have a general conception of nature and its manifestations. However, as economics plays a definite role in shaping human culture and values, especially those of a material nature, economics in turn is influenced by the physical and social environment.

The concept of synergy stands for the combined action or operation of the discrete parts of a structure such that the total effect of the structure is greater than the sum of the effects of its individual parts acting independently of each other. Hermann Haken formulates that,¹ on the one hand, the individual parts of a structure are driven by an "invisible hand" to organize into larger structures. On the other hand, it is the cooperation of the parts which in essence creates this "invisible hand."

Economic paradigms evolve, cease to be dominant, compete with each other, or combine to form new paradigms. That is, economic development is synonymous with the creation of new processes, which implies not only quantitative but also qualitative changes. These processes are brought about by the interplay of man, nature, organization, capital, and technology, which continuously create new possibilities. But one characteristic of the concept of synergy is that the equilibrium of a socioeconomic structure may be upset by changes in the surrounding environment.

Boulding looks at "economics as the study of the provisioning of the human race" and calls for a "revision of the theory of production" to be in line with the evolution of the science of economics. He advances the idea that emphasis needs to be

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shifted to know-how, energy, and materials [i.e., to nature] as the real factors of production instead of holding on to the traditional ones of labor and capital.² This conforms to his "space-man economy" in which "the essential measure of the success of the economy is not production and consumption, but the nature, extent, quality, and complexity of the total capital stock, which includes the state of the human bodies and minds."³

Environmental and energy crises mandate a continuing modification of economic theories and institutions. In the words of Boulding: "The closed earth of the future requires economic principles which are somewhat different from those of the open earth of the past,"⁴ demanding a modification of the traditional assumptions of unlimited resources. In other words, the traditional accumulation of capital or of bound matter-energy is useless if man is unable to create new modes of production which relate to man's and society's changing needs and requirements.

Hans Immler,⁵ for example, argues that the role and function of the natural environment, and its neglect, has been disregarded in the formulation of economic theories of value and their long-term consequences on contemporary policies and on society. In traditional theory, "nature" has been viewed as a free gift to be utilized by man. In general, economists have assumed "an infinitely available and infinitely self-generating nature."⁶

However, nature can no longer be indiscriminately exploited without substantial costs to society — air, soil, and water pollution, the potential threat of the "green house effect," rapidly depleting natural resources, soil erosion, environmentally-conditioned diseases, and excessive population growth. These problems are well known as to need no further documentation.⁷ As Jeremy Rifkin expresses it:

... people are both part of nature, equal to and dependent on all other living and nonliving things, and at the same time separate from

nature with a responsibility to protect and take care of it.⁸

As Immler points out, in order to understand and to resolve ecological problems, nature has to be considered as an economic factor. That is, nature's just claim for remuneration for her productive powers for assuring her regeneration will need to be taken into account. Moving in the direction of a reconciliation of labor, capital, and technological change with nature will bring about a reorientation in economic theorizing and policy formulation.

The emphasis of economics and other social sciences has been to explain the economy and society as the sum of their constituent parts. However, in the words of David Bohm:

unless we understand the subtleties of wholeness, we will not only divide what can't be divided, *we'll try to unite what can't be united*. Real differences and similarities will become hopelessly mixed up.⁹

The problem is to be found in the way economists and policy makers relate to nature, society, and to the economy. The very act of dividing the factors of production into land, labor, capital, and management, or grouping society into landowners, workers, and capitalists, or defining market structures such as perfect competition, monopolistic competition, oligopoly, and monopoly, creates a sense of division and separation of each from the others. However, since all are in reality interconnected, fragmenting the whole of reality cannot work satisfactorily. Therefore, a holistic approach is called for which relates each microeconomic part, including "nature," to the whole of the macroeconomic universe and vice versa.

Conflicts arise between production and consumption, on the one hand, and the reproduction and protection of "nature," on the other hand. Ecological conflicts and crises are their manifestations. The solution to these conflicts is to be found in

a more balanced interrelationship among them, which demands a change in society's value structure.¹⁰

For example, environmental protection may be jeopardized by both the economic interests of the industrialized nations and the nationalism of the economically less developed countries. The latter may be destroying their future by the uncontrolled depletion of natural resources — a starving population may not worry about the future availability of resources.

Lester R. Brown and others raise the questions: Does our generation have the right to extinguish plant and animal species that have evolved over millions of years? Do we not have an obligation to preserve our biological heritage for future generations?"¹¹ He and his colleagues propose an "agenda for action" which "focuses on four areas:"

developing energy strategies that have climatic protection as their cornerstone; expanding the earth's forest cover so as to meet basic economic and environmental needs in the Third World and to slow global warming; redoubling efforts to meet food needs in light of an ominous trend of declining per capita grain production; and braking the tremendous momentum of population growth that already is undermining living standards in large parts of the world.¹²

For the future, the deciding question will be to what extent will all countries, especially the developing ones, succeed in bringing about ecological renewals of their socioeconomic systems. Prosperous markets and higher standards of living are possible in the long run only if their underlying socioeconomic systems are able to preserve a viable "nature" or environment. Hence "quantitative economic growth" policies need to be modified or complemented by "qualitative considerations" towards maintaining and enhancing the productive powers of "nature."¹³

Global environmental problems, which affect all countries in varying degrees, manifest in climatic changes, depletion

of the ozone layer, marine pollution, ground water contamination, toxic waste disposal, acid rain, pesticide residues, energy waste, food and fuelwood shortages, and schistosomiasis.

The problems tend to be more acute in economically less developed countries due to:

1. Poor public awareness.
2. Excessive population growth, caused by falling death but stable birth rates.
3. Social class structures maintaining the status quo.
4. Excessive poverty and inequalities in the distributions of income and wealth.
5. Elitist education; unattractiveness of vocational education; widespread illiteracy.
6. Insufficient infrastructures, especially with regard to water and sewage systems, especially unsanitary water supplies and unscientific waste disposal.
7. Inadequate transportation and storage systems.
8. Insufficient capital investment, especially in the social infrastructure.
9. Inadequate land use policies.
10. Deforestation and illegal extraction of firewood.
11. Soil erosion.
12. Cattle grazing in forests.
13. Urban slums.
14. Scavenging of garbage.
15. Inadequate health care system.

Causes for deteriorating natural environments are to be found in:

1. Lack of information or inadequate public awareness.
2. Substantive legislation to protect nature and the environment are not politically attractive. Politicians are more influenced by short-term personal political gains rather than by long-term social benefits, characterizing a lack of concern for intergenerational equity.

3. Maintenance of the status quo.
4. Close link between abysmal poverty and environmental degradation.
5. Neglect of investment in "nature" or for maintaining the environment.
6. Investments in the environment are long-term in nature, with benefits not realizable in the immediate future.
7. National accounting systems do not consider the value of natural resources or of the environment.
8. Excessive defense spending.
9. Inadequate allocation of public funds for investments in the social infrastructures and in the environment.
10. Conservation involves sacrifice, demanding a modification of the traditional views of production and consumption, i.e., of the value structure of society.

Solutions need to address these causes and symptoms. With regard to fiscal policy, the tax structure needs to be utilized in promoting the regeneration of "nature" or of the environment. This should be complemented by regulatory policies and modifications in institutional arrangements, recognizing that the market is not an efficient allocator of public resources or property. A more effective population policy is required. With the same or increasing population growth rates, accompanied by increased per capita consumption, the relative productive capacity may actually decrease.

Today the world is at the threshold of recognizing nature as a crucial third factor of production, which no longer can be taken for granted. Social values are derived or influenced by man's view of "nature."¹⁴ People have not only become conscious of their environment but they are also capable of shaping it. That is, human action and social determination are able to impose a productive dynamic on "nature," which enables man not only to use nature but also to preserve it.¹⁵ Man has the right to use but not to abuse "nature." However, the regeneration or preservation of resources needs to be

viewed in terms of "positive economic productivity," similar to their use or exploitation.¹⁶

Immler calls for a political economy which assigns equal importance to human beings and nature. This demands a profound understanding of the productiveness of nature and the necessity for its preservation and reproduction. This, in turn, demands the creation of conditions which assure that the material wealth of nature is not diminished but maintained and expanded.¹⁷

Political economy is moving in the direction of a reconciliation of labor, capital, and technological change with nature. The implication of this is that socioeconomic development policies will be forced into a different orientation. In other words, nature's just claim for remuneration for her productive powers for the primary purpose of assuring her regeneration will need to be taken into consideration.

As the Worldwatch Institute stresses:

Social change occurs when people alter the way they perceive some of the elements constituting their world.

An effective response to the environmental threats now unfolding will require that humanity's perception of its relationship to the earth's natural systems cross a new threshold.¹⁸

NOTES

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3. Kenneth E. Boulding, "The Economics of the Coming Spaceship Earth," in *Toward a Steady-State Economy*, Herman E. Daly, ed. (San Francisco, CA: W. H. Freeman and Company, 1973), p. 127.
4. *Ibid.*, p. 127.
5. Hans Immler, *Natur in der ökonomischen Theorie* (Opladen, West Germany: Westdeutscher Verlag, 1985). For a review essay on Immler's work see Siegfried G. Karsten, "Nature in Economic Theories: The Investigations of Hans Immler," *American Journal of Economics and Sociology*, Vol. 36 (January 1987), pp. 61-70.
6. *Ibid.*, pp. 55, 133, 187.
7. Lester R. Brown, *et. al.*, *State of the World 1989* (New York: W. W. Norton & Company, 1989). "Der geschundene Planet," *Der Spiegel*, July 17, 1989, pp. 112-21. Various articles in the *Atlanta Constitution*, July 9-15, 1989.
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12. *Ibid.*, p. 175.
13. Friedheim Farthmann, "Wohlstand ist nicht nur mehr persönlicher Konsum," *Die Welt*, September 15, 1989, p. 16.
14. Immler, *Wert der Natur*, p. 59.
15. *Ibid.*, p. 129.
16. *Ibid.*, p. 75.
17. Immler, *Natur in der ökonomischen Theorie*, p. 426.
18. Lester R. Brown, Christopher Flavin, and Sandra Postel, "A World at Risk" in *State of the World*, 1989, p. 5.