Bio-Business

Introduction

Biopolitics may be defined as "the science underlying the politics to be implemented in order to maintain the continuity of life on Earth." Of these bios-oriented policies, this subsection covers the bios-business interface. In a consumer society money constitutes a value system which needs to be revised in order to create a new definition of profit. Today's society equates value with the quantity of money. This concept may evolve to also include the dimensions of quality of life.

People today realize that economic projects on all levels cannot be carried out for the sole sake of gaining maximum profit. Important measures have been taken worldwide in an attempt to minimize the deleterious effects of our business activities on living things and their communities around us. But all these practical steps must now be supplemented by a new policy of political and economic measures adhering to the biopolitical concept that life is an integral entity embracing the planet and penetrating each of us.

The world economy is now at the point of radically changing its attitude towards the bio- environment. This will undoubtedly entail significant changes in the system of economic values.

Biology has recently developed important ramifications dealing with health, agriculture, arts, marketing and business. The progress of a nation in biology can now be considered a measure of its potential economic advance in the future. As contrasted with the environmentalism of the 80's which avoided dealing with the business world, modern biopolitics actively seeks cooperation with it.The corporate leaders are encouraged to introduce bios-oriented values into their activities.

The oncoming value-system shift in economics consists in essence in the substitution of the previous pollution control (spoil-and-compensate-for-it) doctrine by the new pollution-prevention and ecology-economy harmonization (thou-shalt-not-spoil) strategy. This is what is referred to as the cleaner production concept. Complementary to it is the renewable energy concept which enables us to prevent depletion of conventional energy resources. renewable energy also means creating less pollution.

Establishing Worldwide Economic Stability

The present world economy is characterized by increased instability in the distribution of income and the use of natural resources. The widening of the gap between North and South results in the acceleration of this imbalance.

As it is well established from the study of various physical or social systems, the uncontrolled evolution of an isolated system leads to maximization of the entropy, the tendency to disorder. Similarly, entropy is generated in society through the unforeseen applications of technological progress, the destruction of the bio-environment, resources depletion and the explosive economic problems of developing countries.

In order to reverse this course and decrease entropy, the world community needs to develop regulating mechanisms, based not only on measures of purely economic nature, but mainly on new values and norms in business and society. A long range bios promoting policy may contribute to alleviating inequalities and prove to be profitable in any endeavour. The present, polluting values in business policy need to be substituted by a new, millennium approach, by implementing profit making clean technology and filtering out the policies leading to the annihilation of `true' profit for society. The concept of profit needs to be redefined, including the dimensions of quality of life, preservation of natural resources as a measurable part of a nation's wealth, better health and the protection of bio- diversity.

Introducing Environmentally Friendly Industry

Environmentally friendly production can be promoted by introducing resource and pollution taxes and other incentives for clean production. Efforts should be made to make businesses aware that it is in the interest of their own survival and long-term profits to protect the bio environment. Important steps were already taken in this direction in the 80s, as the oil shortage problem was overcome by introducing more economical methods of its use in industry. However, industrial production is to become dependent upon renewable energy sources rather than the continued use of non-renewable sources and raw materials whose large-scale use poses environmental threats. Economic growth should be based upon the use of technical bio-energetics. Bio-energetics is aimed at the replacement of non-renewable energy sources (oil, coal) by fuels (ethanol, hydrogen, biomethane, acetone, butanol) produced by microbial cells.This will lead to the prevention of both resource depletion and environmental pollution. Other alternative energy sources dependent upon solar energy are to be employed and the existing techniques of energy conversion should become more efficient. Therefore, it is imperative that:

- the production equipment and design be modified so as to achieve environmental protection during the process of production itself. At the posterior stage of waste product elimination, to make the best use of new in-line technologies, such as ion exchange and ultrafiltration, minimize or avoid using corrosive agents like acid and caustic substances;
- the policy of waste reduction is to be consequently pursued, which entails prioritization of all the waste streams and development of measures to achieve their long-term reduction.For this purpose, technical and research assistance on the part of qualified specialists is to be sought, and yearly progress reports of business-related and industrial research institutions on the issues considered are to be required;
- appending to the previous: in terms of the general practice of making the polluter pay emission taxes. If environmentally hazardous and/or non-renewable substances were used, resource taxes are to be imposed on the firms involved. The goal should be to "internalize the external costs" of environmentally hostile products, so that they become less competitive in the market. In view of the impending ozone hole threat, urgent measures are to be taken to completely eliminate chlorofluorocarbon emissions. The compensatory expenditure needed for eliminating pollution is to be computed in terms of ecoaccounting. Upon its consideration, the environmentally related product (EcoNational Product, ENP) should be calculated.

Environmental protection is to become a profit-generating activity, which requires considerable changes in business policies. It also necessitates an attitudinal change. Businessmen are to realize that ecological and economic benefits can be achieved in parallel. They do not necessarily exclude or reduce each other. Introduction of ecoproduct labelling will be one incentive for clean production.

Creating an environmental image will also increase the number of people interested in the activities of the enterprise, and ready to apply for a job.

Sustainability Concept

New production facilities are to be designed. The existing ones to be improved upon in compliance with the principle of sustainability and "the capacity of the earth's biophysical, life- supporting system to continuously sustain and nourish plant and animal life." A great number of products and technologies currently in use are not sustainable in the long term and the problems preventing world production from being fully sustainable are detrimental. The crucial ones being:

- debt, a development burden,
- the balance of payment crisis: a perverted transfer of capital,
- export pressure: an unfavorable forced sale.

It is evident that all these problems primarily concern developing countries, which find it particularly difficult to meet the high costs of building environmentally-friendly production units. The damage already sustained by bios, as a result of its human-dependent deterioration, is to be repaired.

Improving Agriculture for the Benefit of Bio-Environment

New methods of agriculture characterized by increased efficiency should be introduced as an alternative to further plundering of natural resources. It is known that the clearing of tropical rainforests entails serious environmental and even climatic changes. Therefore, particular emphasis is to be placed on agroforestry, reforestation and relevant applications of biotechnology. Wood burning should be replaced by more efficient methods of energy conversion as far as possible. Biological methods of combating weeds and insect pests are to be introduced as far as possible. Use of environment- endangeringöespecially persistent and bio-accumulative pesticides should be kept to a minimum. Alternative techniques of precise delivery of pesticides to the agents they are to destroy should be applied. However, large-scale use of biotechnology requires ecological appraisal of biotechnological industry which may otherwise pose environmental threats.In Brazil, extensive areas were used as sugar- cane plantations to produce sucrose which was thereupon converted to ethanol using yeast. This biotechnology had, however, a dual effect. Ethanol was extensively employed as motor fuel together or instead of gasoline, which undoubtedly improved the ecological situation in the cities. However, the waste products from the distilleries were released into the natural water bodies which became dangerously polluted by organic substances.

Establishing Waste-Free Production Cycles

The general tendency towards the establishment of waste-free production cycles simulating materially closed or semi-closed natural ecosystems, and foreshadowing the global restoration of the Biocycle-Man-Environment,is to be disseminated as widely as possible. Eventually, all human products should become a qualitatively and quantitatively utilizable substrate for bios, and bios in its turn should provide the necessary amounts of food for humans, and of raw materials for industrial uses.The Biocycle-Man-Environment is currently being

carried out on a local scale. For example, waste-free operation of a cattle-breeding farm has been achieved in Colorado. The cattle manure and other wastes are converted to combustible bio-gas which fuels local power stations.

Introducing Ethical Dimension into Bio-Business

In order to cope with the present urgent problems, industrial and governmental leaders as well as those involved in business and production are to take special responsibility. New codes of ethics, providing rules and guidelines in the exercise of professional activities may be established by professional groups. There is a need for international cooperation on the aforementioned issues, and enactment of international sanctions for redistributing the capital investments positive and negative incentives in the interest of sustainable production on the global scale. Special emphasis should be placed on:

- sanctions protecting the natural resources and thereby the bio-environment of the less developed countries from overexploitation by the investors from the developed countries; besides, in terms of international sanctions, the fund commissions that aim at decreasing the pollutantCO_2, NOx, SO_2, CFCemission can be established, raising funds from the fees paid by polluters themselves;
- the serious environmental problems of many less developed countries, as well as the practice of `exporting pollution' into them are pressing issues today. In order to overcome these problems, direct transfer of funds from leading economies is required. This is a prerequisite for building up environment-friendly economies in these countries;
- the establishment of specific institutions promoting bio-business in relation to bioethics. A promising idea is to establish national Eco-Sustainability Research Centers.These institutions should engage highly qualified experts, "architects of economic and technological developments";
- the promotion of a bios-centered economy. One of the methods of achieving this goal is the development of international cooperation on the basis of agreements and conventions. For instance, according to the Montreal Protocol on Substances that Deplete the Ozone Layer, the decision was made to impose limits on the use of CFCs. This agreement was reached on a voluntary basis. The other option is to introduce the above environmental sanctions on an international level. Creating international positive incentives would call for the establishment of an international fund. This fund could be used, for example, for rewarding the efforts of companies to prevent environmental pollution;
- the corresponding national-level developments which entail adaptation of the internal structures, incorporation of the item environment into the national accounting and elaboration of proper incentives and disincentives. These national developments are to be internationally coordinated as far as such pressing international problems as the greenhouse effect (result of CO_2 emissions),the ozone layer hole (result of CFC emission), heavy-metal induced damage to biosand acid rain are concerned. In using energy from biomass or bio-energy and in the clean-up of rivers and major water bodies, internationally supported local scenarios are to be developed.

New Lifestyle and Bio-Business

The changed business mentality should become part of a general tendency toward an environmentally-friendly lifestyle which also includes other dimensions. A major, multi-dimensional problem requiring a general lifestyle change and involving a new business style is the issue of preventing extinction of flora and fauna species. This issue is the focus of the World Wildlife Foundation.

Prevention of environmental deterioration also calls for creating ethical, not merely pragmatical incentives. This is the consideration of bio-ethics discussed at length in the corresponding section of this Bio-Syllabus. Each business company currently in operation should take an interest in bios-related problems. One of the main incentives for this interest is the creation of a proper environmental image of the company and its production. This incentive has both a moral and a pragmatical aspect. It promotes the biopolitical values and at the same time may contribute to the progress of the entreprise in business. The environmental image can attract the attention of the potential consumers as well as of the people in the labor market. Environmental conservation can also stimulate the company to economize energy, water and raw materials, in terms of the clean production and renewable energy concepts.

Addressing the public at large

Mass involvement of the people into the re-orientation of business in conformity with bios values is to be achieved. Participation of mass media and commercial advertizers is of particular importance for attaining this goal. In order to create sufficient support for the cause of bios promotion, it is necessary to address both on the local and on the global scale, all people really concerned about the bio-environment.

The general value change required for the new economic and business policy should not be restricted only to those directly involved and should gain worldwide public support, enabling humanity to start a new era at the threshold of the oncoming millennium. In fostering these goals, biopolitics relies upon "one of the most remarkable phenomena of the 20th century...the growth of an environmental consciousness rushing to keep pace with the explosion of mankind's technological capabilities." The importance of worldwide cooperation for promoting bio-business should be emphasized. The developed countries should be held accountable for the bio-environmental situation on their own territory

and in the developing, raw-material producing countries.

"In the 19th century, the dominant reality in Europe was the nation and military strength, in the 18th century the king's or duke's court. You can go century by century to discover that it is truly a late 20th century prejudice to believe that economy is the reality. People in the 21st century will consider nature and the environment as the dominant reality".

Objectives:

- to stress the compatibility of making profit with parallel respect to the bio-environment;
- to add bios-related dimensions to the business and management concepts and methods now in use around the world;
- to provide incentives to business, political decision-makers and people at large so as to elaborate a new strategy in all kinds of business in conformity to the interests, needs and values of the bio- environment;
- to create a new deontology in every endeavour, leading to a code of ethics for the protection of bios from pollution and deterioration.

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