

Bio-Legislation

Introduction

In order to secure the feeling of interdependence between humans and all forms of life, it is imperative that the study of biology be included in fields such as law, political science, economics and the social sciences. Guidelines on fundamental biological knowledge are given in other sections of the bio-syllabus.

Bios Rights

As stated in the section on bio-ethics, the central idea of bio-ethics and biolegislation, regarded as a component part of biopolitics, is the concept of bios rights. 1,2,3 The I.U.B.E. envisages its important mission the promotion of "the development of international legislation on bios rights." 3 These rights can be broken down into the following categories:

- authorization of the right to live: to exist on Earth, to give birth to the progeny;
- satisfaction of the needs of different forms of life, the improvement of their quality of life;
- preservation and the further enhancement of bio-diversity.

As the living things on Earth can be subdivided into the human, animals, plants and micro-organisms, we can separately regard:

- the human rights. Any human being must be granted the right to enjoy living in contact with multifaceted bios. Humanity should also have the right-along with all other forms of bios-to be protected against destructive effects caused in the global environment such as ultraviolet radiation by an ozone screen;
- the animal rights. Cruel treatment of animals, part of the laboratory routine in the past, was eradicated in most laboratories of the world after the introduction of new legislation on experiments with animals in the 70's and 80's. Detailed protocols concerning humane rules of animal research were developed worldwide. Numerous powerful movements of animal friends and defenders of animal rights took shape in different countries, some of them identifying themselves with bio-ethics, the issue which the struggle for animal rights undoubtedly represents.
- the plant rights. Besides their unsurpassed beauty, plants are very sensitive to the slightest perturbation of their environment. They can, for example, serve as reliable bio- indicators of heavy metal contamination. There are also many indications that plants interact with human beings. Certain plant species such as the asp, are believed to relieve the symptoms of headache and giddiness in humans by decreasing the intercranial pressure. The plants on Earth form a sophisticated network of the global flora. The oxygen released by it is vital for all the other forms of life. The O₂ produced by the plants is partly converted to O₃- ozone-in the upper layers of the atmosphere. Thus, the enhancement of plant rights can help humanity overcome the ozone hole problem;
- the microbial rights. The microorganisms are performing extremely important functions in food and feed production, in plant protection against insects and weeds, in energy production and de-pollution of the environment. The advances of microbiological genetics has enabled the biotechnologists to establish real bio-factories with the aid of some microbial species such as Escherichia coli. This bacterium has been engineered to produce low-cost human insulin and will undoubtedly help people fight diabetes.

Bio-Environment and Enactment of the Bios Rights

In accordance with the idea of bios rights as discussed in bio-ethics, the following additions and amendments to legislation now in force are to be considered and if deemed useful, authorized and enacted:

- explicit reference to the bios concept^{4,5,6} in the laws, constitutions and codes of states and international political organizations;
- enlargement of legislation concerning environmental protection and its formulation in terms of bios;
- official authorization of the basic rights of bios, ^{4,7,8} in the first place of the right to live on Earth;
- development of the judicial code on issues involving the above rights.

"The distinction between prudential control and regulatory intervention is vital in this context. It must be realized that environmental considerations should become one of the determining, if not decisive, factors of corporate decision making. It must be realized also that protecting and preserving the environment not only is compatible with economic development, but that the environment constitutes its premise and its limits." ⁹

Cleaner Production Concept

This important concept envisages minimization of the waste production by industry, introduction of waste-free, self-sustaining production cycles (industrial ecosystems), preferential use of renewable resources, and de-linking the development of industry from the use of environmentally important inputs. In terms of the clean production concept, the following goals should be pursued:

- prevention rather than pollution control;
- improvement of the workers' environment;
- amelioration of the immediate environments of the factory/plant;
- economical consumption of energy and raw materials;
- improvement of the product quality;
- satisfaction of needs and aspiration of the consumers;
- achievement of societal stability.

Thus, cleaner production represents a multidimensional concept, and regulatory policies on it are to be elaborated. It is also interrelated with the renewable energy concept which encourages industrial enterprises to rely primarily upon renewable and non-pollutant energy sources. Minimization of fossil (oil, coal, gas) and radioactive (uranium) fuels is envisaged by this concept. Use of bio-energy, as described in the bio-business section, is recommended.

Pollution Prevention: Impact on Legislation

Of particular importance are the following legal measures in support of the necessary attitudinal changes involving business and management:

- realization that environmental protection and industrial developments are complementary not competitive; that they "are thoroughly interwoven and rise and fall together";⁶
- shift from short-term, corporate way of thinking to the pursuit of long-term objectives important for society and the whole bios;
- focus on pollution prevention, not merely pollution control;
- development of laws and regulations concerned with the protection of soil, the prevention of its erosion and efforts to improve water quality;
- protection of forest ecosystems; reforestation of the regions where natural forests have been razed or damaged on the basis of a detailed environmental legislation;
- prevention of the further depletion of the Earth's food, feed, raw material and energy resources. A search for renewable resources, particularly with the aid of bio- technology. ^{11,12} It is imperative that new laws should be developed on all levels which would allow for a more balanced distribution of raw materials, capital investments, and consumer goods among different regions of the Earth;

Making the Polluter Pay

The prevention of pollution also requires authorization of laws imposing taxes on the industrial or agricultural companies who do not introduce environmentally friendly production. Also an enactment of a system of awards for those earnestly concerned with the problems of the bio-environment. Thus a creation of both positive and negative incentives for the maintenance and promotion of bios. The current taxation system is favoring minimum capital and labor investment on environmentally friendly production, achieved at the expense of resource depletion and environmental pollution. The focus of the tax policy should be shifted toward a more balanced taxation system incorporating bios values, which also requires a considerable effort on the part of the bio-legislators.

Supervision over the operation of the taxation system can be the task of international organizations involved in the control over the fulfillment of international agreements and conventions on de-pollution and other bios-related issues. This legislation should also extend to the activities of international legal bodies introducing environmental sanctions as discussed above. Legal matters concerning the establishment of an International Tax Fund envisaged by U. Simonis^{13,14} are to be clarified.

Long-Term Thinking in Relation to the Bio-Environment

It is imperative that the short-sighted business policies aimed only at obtaining maximum short-term benefits at the expense of squandering natural resources, endangering the bio-environment and jeopardizing the people's health should be abandoned throughout the world for the long-term view and a realistic assessment of the future impact of present-day practical activities. Special emphasis should be placed on the following points:

- studies on the global long-term effects¹⁵ of human technology and civilization: the theoretical and methodological knowledge obtained thereby should provide the foundations for new legislative initiatives;
- elaboration of measures needed for ameliorating the damage already sustained by the environment and the incorporation of corresponding regulations into the legislation on all the levels.

Legislation on Genetic Engineering and Bio-Medical Issues

The rapid development of genetic engineering, artificial insemination, in vitro fertilization and other related techniques calls for the elaboration of the legislation concerning the application of all these techniques, in particular to human beings. This new legislation should be aimed at both stimulating these developments for the benefit of bios and mankind and preventing the potential risks and hazards, such as unwanted release of abnormal organisms into the environment. 17,18,21 With regard to the bio-medical applications of the above methods, the following guidelines can be drawn:

- concerning the potential use of genetic engineering for prevention, diagnosis and treatment of hereditary diseases, infectious diseases, or cancer: enactment of a comprehensive legislation protecting personal freedom;
- enactment of laws regulating the use of fetal/embryonic materials^{19,20} for purposes other than medical treatment or scientific research relevant to health care;
- development of regulations covering the uses of human organs and tissue for medical purposes, research with due consideration of commercial and property issues relating to human materials;
- elaboration of the rights of parents, spouses and other family members vis-a-vis donation of the organs of a deceased person as well as of the right of a person to give in advance his consent to using his organs in case of fatal accident;
- clear, unambiguous formulation of the duties of the surgeons and other medical personnel with regard to the due information of the potential organ donors and recipients on the risks and hazards associated with organ transplantation as well as of the long-term effects of this surgical operation on both;
- clarification of the legal questions pertaining to medical bio-ethics, more detailed consideration of confidentiality between doctor, patient and family;
- elaboration of a system of laws dealing with death, suicide and euthanasia in the light of latest scientific and medical developments as well as attitudinal changes.

Impact of Biotechnology

Apart from the genetic engineering issues mentioned above, biotechnology in general should be considered a powerful factor which can contribute to environmental protection and production intensification. Production of crops resistant to frost, pests and diseases is currently a feasible idea. Another important option is the use of energy from biomass, in the form of ethanol, bio-gas, or hydrogen, whereas important legal issues on biotechnology include:

- the patentability of living organisms produced using biotechnological methods.
- the regulations to be developed concerning information exchange among scientists involved in the business activities of competing enterprises.
- currently, biotechnology is acquiring new dimensions not confined to production of material goods. Investigations of the beneficial effects of plant and animal organisms on human health and psyche are in progress. These developments call for careful investigation and well-balanced judicial formulation of ideas on the beneficial influence of communication between humanity and the diverse forms of bios. 1,23,24

The Distinction Between Environmental Law and the Biopolitics Approach.

Environmental law runs parallel to biopolitics. "It tries to create a legal framework that establishes a defense mechanism for the environment, in a way that it regulates, though one may even argue that it halts economic and technological growth so that they stop short of any adverse effects on the environment. It acts ex post, as an external factor to prevent scientific growth from trespassing the mark beyond which it upsets the balance between economic growth and ecological interest." 9

The Biopolitics approach, on the contrary, "attempts to integrate the concerns for protecting the bio-environment into the principles of the individual sciences so that any definitions, rules, or conclusions of the legal or any other science have already taken into account environmental considerations. Thereby, considerations of protection of the bio- environment do not set, in Biopolitics, a check-point or, even less, a limit to the development of other sciences, human or technological, but rather the bios preservation concerns development into a value system setting the scientific principles and promoting the development of those sciences." 9

Objectives:

- to promote an understanding of the bios concept by the people involved with legislation;
- to ensure the authorization and enactment of bios rights, as stated above;
- to encourage the introduction of new regulation regarding the prevention of further deterioration of the bio-environment in any form or by any means, as well as the compensation for the harm already sustained by the bios as a result of human activities.

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