

# The Application of the Prevention Principles and Precautionary Policy of Environmental Protection

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**Abstract:** The principle of preventing environmental degradation is one of the fundamental principles of environmental law, the contents of which expresses the idea that the most and more effective strategy consists of environmental pollutions prevention and ecological damage any kind, instead of remedying the effects thereof. Caution refers to measures taken, even if damage is not provided in the near future so as to remove any risk (as far as possible) degradation of the environment. Genetic engineering is therefore a nine technology involving the manipulation of human gene. Like any innovation, and genetically modified organisms are the subject of debate and analysis on the need and desirability of their use. This paper aims role principles of environmental law (principle of prevention and the precautionary principle) in the genetic modified organisms.

Protecting nature through legal regulations imposed weight, showing obvious imperfections, and today, thanks in large part, the specific problems and general attitude in the matter.

This was because "the environment was not until long been regarded merely as an easy source for fuelling economic processes specific human society and as an area for free discharge of all waste and residues of human activities, without you account in mind that is subject ecosphere without stopping of transformation within the framework of natural cycles in which each element has its place and its role in maintaining the dynamic equilibrium of the entire system exospheric."

The principle of preventing environmental degradation is one of the fundamental principles of environmental law, the contents of which expresses the idea that the most adequate and more effective strategy consists of environmental pollution prevention and ecological damage any kind, instead of remedying the effects thereof. Precautionary principle comes in the continuation and completion of the principle of

preventing environmental damage. Caution refers to measures taken, even if damage is not prefiguring in the near future so as to remove any risk (as far as possible) degradation of the environment.

The difference between the principle of prevention and the precautionary principle is given specific content of each. Thus, the principle of prevention refers to the existence of certainty about a phenomenon and the consequences of any action against it; risk knowledge and wanting to stop its effects, will take measures in relation to the known and measurable risk. On the contrary, the precautionary principle assumes an attitude that is to take measures against a risk incert, unknown or poorly known.

## **1. The principle of precaution and prevention. Applicability their issues of genetically modified organisms**

Biotechnology is the science which has been in recent decade's significant progress and they do not stop, on the contrary they continue in a rhythm, which unfortunately is not favorable for the environment, life and human dignity.

A genetically modified plants and animals for their defend disease and to obtain high yields is a normal science temptation who managed to make a manipulate molecules that contain genetic information. But these genetically modified organisms, fundamentally different, the damage can generate a new type whose scope and impact remains unknown for now, but are possible and even probable.

The issue of genetically modified organisms had been raised by institutions of the European Union there a series of directives in this regard, which examines the potential risks they may present GMO and which provide a mandatory control not only of their placing on the market, as well as scientific research to produce them. European attitude is not seen at all with the goodwill of U.S. authorities who believes that the risks posed by GMOs not worth delaying the measures envisaged by the EU would bring scientific research and international trade.

History transgenic maize shows to what extent the application of the principle of precaution and prevention in the field of biotechnology must take account of political relations between states. Culture and consumption of genetically modified maize may generate risks multiple: in the field of nutrition, public health, agriculture, the environment. The products are based on modified maize may have consequences that science has not discovered and whose impact on health remain unknown for long enough. This example is very conclusive and comes to reinforce the idea of applying the precautionary principle and the principle of prevention, as the specialists argue that the genetic modification of maize will lead to secret area by a plant toxins and insecticides that after May many generations could produce a mechanism for adjusting the insects, which would determine a change of situation, that is a proliferation of pests, which would seriously affect the culture of maize.

This is just one example, because in reality, there are many plants and animals genetically modified, on which there many suspicions and uncertainties are related to safety and their alleged role of his adherent's genetic changes.

Genetic engineering is therefore a nine technology involving the manipulation of human gene. Given the universal language of the genes (the genetic code), people science can transfer genes between different species that are not relate (animals, plants, microorganisms).

## **2. The advantages, disadvantages and risks of using GMOs**

Like any innovation, and genetically modified organisms are the subject of debate and analysis on the need and desirability of their use. He arrived there before that, "in 2003, during a meeting at high level between the management of U.S. and the European

Union, the issue of GMOs to be examined on an equal footing with other major problems of contemporary mankind. Americans are for the promotion of GMOs, as they claim the products obtained from these genetically modified organisms, large productions to be performed, and other valuable characteristics could contribute to ensuring food security worldwide. On the other hand, argue that Europeans have nothing against these products, but considers them have not been sufficient studies to prove that genetically modified products are not harmful to health and the environment. "

#### **a. The advantages of using GMOs**

- "According to FAO (Food and Agriculture Organization of the United Nations) potential practical benefits of biotechnology would be the following: Improving nutrition foods with high consumption. For example in rice can be inserted genes that produce beta-carotene, which the human body it transform in vitamin A, which causes a lack of major cases of lose of vision and contribute directly to a large number of deaths in children.
- Reducing environmental impact. Researchers working on obtaining some types of trees whose cells contain a genetically modified lignin that avoids chemical treatment of wood in the manufacture of paper, costly and polluting operation. Improving efficiency in the fishery. Research has changed gene that control the production of growth hormones in Filipinas, a fish hatchery, which improves the increase in weight and the quantity of protein.
- Absorption increased by animals of chemicals in animal feed. Fodder for genetically modified animals will be better assimilated, which will result in reducing the content of chemicals in toxic substances animals, which contribute to pollution of groundwater.
- Tolerance to environmental conditions precarious. Researchers working on the creation of transgenic crops resistant to drought and soil salinity, which that allows extending their marginal land and poor quality."

#### **b. The risks of using genetically modified organisms**

FAO (2001) believes that "following aspects present the greatest risks of GMOs introducer:

- Insufficiency control measures. Although control measures were implemented, they do not prove sufficient. In 2000, for example, a variety of corn has undergone a change, approved in particular for feeding animals. The products resulting from genetic modification have been identified in human food, which was supposed to take place.
- Transfer of allergens. There is the possibility that allergens be involuntary transfer from one organism to another. For example, when a gene of the Brazil nut was transferred to a variety of soybean, during the tests was found that the variety of soybean that has been transferred while a common allergenic, discovered during testing. As a result soybean variety that was not launched on the market.
- Imprevizibility. GM crops can have unpredictable effects on the agricultural system. It may have some forms of genetically modified to extract a greater quantity of nutrients from the soil or to consume more water than normal crops. Accidental gene transfer. The artificially genes placed in a species likely to be accidentally introduced into another species. For example, resistance to herbicides could move from a genetically modified variety in this regard, weeds, becoming themselves resistant to the herbicide.
- Environmental risks. Transgenic fish species are likely to alter the genetic composition of natural fish populations, if they to escape in kind. For instance, the

fish genetically modified to increase their efficiency, could invade November territories disturbing in this way the biology of fish indigenous peoples. "

### c. Disadvantages genetically modified organisms

Although the list of benefits seems long and close interminable, it is followed by a list equally consistent disadvantages, which come in counterweight the first, and it scares the optimistic people not think only good brought by genetic modification. Here's one of the disadvantages of genetically modified products:

- Excessive multiplication which would turn the genetically modified plant in a invadator of agricultural system and even the natural habitat as a whole; Change biochemical cycles (nitrogen and carbon cycles); inopportune of modified genes transfer to other plants, planted or spontaneous flora as a result of production of a "genie flow via pollen carried by wind or insects; negative influence on the interaction between species (predator-prey relationships, parasitism etc.);
- Non advance and direct impact on non-target species (such as reducing food resources or the habitat they depend on the survival of other bodies); changes in the dynamics of populations due to a transmission plant as non-transgenic species related to the flora spontaneous. Some of these effects are difficult to predict accurately or may become evident only over time. But the risk that they will take place there whenever a variety is placed ninth in culture, regardless of how it was obtained. However, given that through genetic engineering can be made a transfer of genes between organisms which are not related, which would not be able to combine in natural conditions, many countries have been drawn up a series of regulations in accordance with the precautionary principle. Concretely, request an opinion regarding the deliberate introduction of transgenic plants in culture, and must be accompanied by a study of environmental impact. Risk assessment includes should include: identifying potential harmful effects to human health and the environment associated with the introduction of PMG (genetically modified plants) agricultural system; estimate the probability of occurrence of these effects by taking into account the possible interactions of GMOs with other components of the environment, estimating the consequences each produce harmful effect, setting the general level of risk, the adoption of security measures, checking their effectiveness.
- Plants have different capabilities to dominate or invade certain environments and to disperse genes in different populations and species. As a result, and their impact on the environment, after genetic transformation will be different. Depending on the receiver (country, region), plants can have a big impact, medium or minimum. As can be readily ascertained, the problem of environmental impact associated with the introduction of the commercial culture of genetically modified plants is very complex. Unconditional acceptance of genetic engineering is dangerous. As it is dangerous but the total rejection of these products because they may be synonymous with surrender, in the most stupid as possible, at considerable benefits for the environment and society. Accordingly, the words order must be in this regard lucidity and discernment.

Who's who oppose genetically modified organisms stresses that "certain aspects of ethical genetic problem lies in the context of the most important principles of human rights:

- **right to an adequate diet and** - which refers to the availability of a diet free of harmful substances, in sufficient quantity and quality adequate to meet the food needs of the individual and the accessibility or the opportunity to obtain the food in a sustainable manner and not hinder respect other human rights. The committee of

economic, social and cultural rights and the Commission on Human Rights of the United Nations has addressed this right in the World Summit on food.

- **right to an informed choice** - derived from the ethical concept of autonomy of individuals. Election knowingly concerned consumers is possible only under conditions correct information so that they know what consumed. This principle could be applied, first, by labeling of foods produced from GMOs. Any strategy for informing the public should include methods and techniques appropriate to address groups and less trained and most disadvantaged, so be given any opportunity to take decisions on its own needs.
- **a right to democratic participation** - corresponds to the need for justice and fairness, they find the concerns regarding decisions on the issue of genetically modified organisms. All social categories must be given the opportunity to participate in debates on the impact of GMOs on the life and the environment, and the advantages and disadvantages they may offer. The decisions taken today should not be affected right of future generations to meet their specific needs. "

With the evolution of biotechnology occurred nine and a science called bioethical science which is defined as "a scientist who studies border issues arising from the moral progress of biology and medicine." Bioethics is the link between life sciences and universal human rights, which take care to avoid any possible abuses arising from scientific discoveries about the human being. In conjunction with this science of being taken and the concept of "biofact" which "describes an entity that became possible thanks to technical advances, namely the creation of artificial beings in conditions and programming or reprogramming of living beings."

## Bibliography

- Bălan, George. 2002. *The role in the Romania as future frontier of the European Union*, Iași : Publishing Univ. „ Al. I. Cuza”;
- Chirilă, Pavel. 2006. *Dangerous effects on the environment*, Bucharest : Economic Publishing;
- Cîrlan, Marius. 2005. *Animal Genetics*. București : Editura Alfa, 2005;
- Gogu I., Ghiorghiță. 199. *Fundamentals of Genetics*, Bucharest : Publishing Alma Mater;
- Olaru, Bogdan. 2008. *Ethical controversions in the era oh biotechnology*. Iași : Publishing University “Alexandru Ioan Cuza”;
- Marinescu, Daniela. 1996. *The right environment*, Bucharest : House printing Publishing University “Șansa” SRL.;
- [www.ecolife.ro](http://www.ecolife.ro)
- [www.colostate.edu/TransgenicCrops](http://www.colostate.edu/TransgenicCrops).