

uncertainty and therefore “caution is invoked when prevention is not enough” [6].

There are several formulations about the precautionary principle, some that would cover a greater degree of intervention, or a larger scope of the concept, but they all share some basic elements: (i) the threat of a serious danger to the environment or health, of which (ii) there is no scientific certainty, but (iii) if there is some certainty, (iv) the authorities must take protective measures, or they cannot defer them until absolute proof is credited.

It has been said that the precautionary principle entails five specific virtues:

- a. Responsibility: Who initiates an activity must demonstrate that no safer alternative route to achieve what has been proposed.
- b. Respect: In situations of serious risk, preventive action is required to prevent damage, even if there is no full scientific certainty of cause and effect.
- c. Prevention: exists a duty to search for ways to avoid potential damage, rather than to seek to control them afterwards.
- d. Obligation to know and to inform. There is a duty to inform those with the potential risks of the possible impacts, it should not plead ignorance
- e. Obligation to share power. Democratize decisions regarding science and technology.

GM food, the production of certain drugs, nuclear waste, the greenhouse effect, the mad cow disease, blood contaminated with HIV that affected thousands of people, despite their gender difference, are linked to the precautionary principle. It is a technology-saturated society, inhabiting an intervened and altered nature; these risks which are unknown become important. So, this raises concern in society and attention from the law and courts, without waiting for actual harm. In consequence, the precautionary principle is one of the ways of today's society to deal with this new kind of risks associated with scientific uncertainty, and it increased social sensitivity towards a policy of caution and precaution with these new risks that are generating a new model of response which is not preventive but precautionary.

Indeed, there is a difference between the preventive principle and the precautionary principle. The first one, wants to avoid damage. The precautionary principle introduces a different perspective. It seeks to prevent the creation of a risk with still unknown effects and therefore unpredictable. It operates in the realm of uncertainty, and invokes urgent measures even though there is no scientific evidence on the behavior of nature. Prevention is a rational behavior against an evil that science can measure within scientific certainty. In precaution, on the contrary, the scientific knowledge is still insufficient to respond to a given problem.

Case Law in Colombia

Colombia has not escaped the following dilemma: while public decisions taken within the framework of scientific certainty will always be responsible and beneficial for the private sector and encouraging the development of rigorous scientific studies, an absolute defense of this approach can delay constitutional rights protection, to the point of making it ineffective. From the opposite perspective, an intervention by the authorities in the scientific activities in the absence of certainty of damage to the environment or health implies a stagnation of scientific activities, while sending a negative message to the development of

rigorous research, hinders the exercise of certain liberal professions and trade.

The Colombian government, in fact, began to express its interest in taking the precautionary principle in the field of environmental protection, by signing the Rio Declaration on Environment and Development. This document introduced, in its Article 15 the precautionary principle, under the following formula: “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.

Soon after, the precautionary principle acquired a constitutional status in the Colombian legal system with the enactment of Law 99 of 1993 which incorporated the principles of the Rio Declaration into

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