

GUIDELINES FOR AN ENVIRONMENTAL CODE OF ETHICS FOR RESEARCH INSTITUTIONS

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ABSTRACT

The purpose of this work is to reflect about actions that may contribute to the creation of mechanisms to protect the environment in the development of research projects at research institutions, specifically the Nuclear and Energy Research Institute - IPEN. A brief review of part of the ethical values applied to the process of scientific development during the old, medieval and modern periods is presented, showing the split of the nature ethical principles. It is also reported an overview of the creation of codes of ethics applied to research institutions. Moreover, criteria are presented to settle guidelines to protect the environment during the development of research projects.

1. INTRODUCTION

The development of the scientific methodology made possible to the man of science the discovery of new theories and explanations. This advance contributed in different aspects for the modern society, however, was not possible to foresee the interferences that would occur in the environment. The search for the experimental veracity distanced the man of its basic unit, the nature, from the cartesian method (rationalist conception of Descartes), the separation vision became predominant. This new scientific model created instruments capable to get efficient results by means of the observation, formulation of hypotheses, collect of data, experimentation and obtainment of constants and generalizations.

This new scientific model created capable instruments to obtain efficient results by means of the observation, formulation of hypotheses, collect of data, experimentation and obtainment of constants and generalizations. The importance of applied ethics to the environment in the process of scientific development becomes evident when the suffered interferences for the planet and the consequences for all human beings are perceived.

Since the second half of century XX the humanity has been undergoing for a crescent awake of environmental conscience in result of a series of accidents with serious consequences, between them some can be cited [1].

(I) Years 50: In 1952, a dense cloud resultant of the burning of coal, with great sulphur tenor, covered the city of London, during ten days of the December month, causing a phenomenon that was baptized as “smog”, resulted of the contraction of the words “smoke” and “fog”, the result was the internment of thousand of English people with pulmonary problems [2].

(II) Years 70: An accident in a pesticide industry, located in the city of Seveso, Italy, originated a white cloud contained about 2.5 kilos of dioxina. In this accident 100.000 people were contaminated.

(III) Years 80: In 1984, at the city of Bhopal, India, a leakage of methyl isocyanate gas killed 3.323 people and 35.000 were chronically sick.

(IV) Years 90: A fire, initially caused for indiscriminate fires, covered the Asian Southeast after destroying great part of vegetal covering.

(V) 2000: The accident with a damaged duct of Petrobras permitted the leakage of 1,3 million liters of oil in the Guanabara bay, Rio de Janeiro.

Concomitant with the accidents, the environmental questions became part of the list of the main communication medias, placing in prominence subjects as:

- Destruction of biodiversity;
- Destruction of the Ozone layer;
- Global Heating;
- Population Growth;
- Pollution;
- Potable waters Availability.

The man behavior can be understood in relation of its individual attitude inside of the humane community which it's belongs (tribe, class, nation, society, etc) and its actions affecting or not, the others, therefore it is necessary to reflect on the ethical aspects in different periods to understand the interference of the man in its environment.

The ethics of the old period made possible to the man the freedom of reflecting about reason, nature and ethics politicians values. The Greeks had in the ethics the base of the man character formation. On the medieval period, the ethics was based upon between reason and faith, and the church emerged as spiritual and politics force. In this period the biggest virtue that man could have was the linking with God. The modern age is marked by the change of paradigm that is characterized for a series of changes in all spheres, in the capitalist relations of production, in the social order and mainly in the ethics-religious order. The man disentailed from religious values and searched for new scientific models through the knowledge. There is a necessity of associating the ethical questions of the humanistic field with the scientific researches in its different branches to establish a reflection process that is capable to glimpse in a same project different dimensions [3].

In the past there were no formal documents that legitimated the participation of individuals in research, what occasioned a sequence of errors. The first regulating norm of research with human beings, was the Code of Nuremberg, in 1947, that determined ten points that should be respected in researches involving human beings. Taking for base the Code of Nuremberg, the Declaration of Helsinque was created to establish two new exigencies for research: formulate a research protocol and submit the project to a Committee of Ethics. The Brazilian Regulation of Ethics in Research was established by the Resolution 196/96, of 10/10/1996, and presents a series of exigencies for researches which involves human beings. To attend the norms of the Resolution 196 the Institutions of Research created its own Committees of

Ethics in Research - CEP, with the objective of following and verifying the research projects involving human beings. It is necessary to establish guidelines for the creation of an environmental ethics in the research institutions due to the fact that nature is essential for the life of men.

Since AGENDA 21 [4] was fastened, the responsibility levels descended from all the governmental instances to the common citizen, passing for the companies and other types of organization, between them the institutions of education and the institutions of research. Today, more and more, there is the necessity of an elaboration of projects that have as basic principle do not injure the environment.

However, to guarantee that the projects are prepared with a minimum of criterion, the Institution of Research must adopt prevention measurements before its execution. The adoption of an Environmental Management System (EMS) make possible identify some guidelines to determine environmental aspects and impacts, by means of the orientations contained in norms as ISO 14001 [5]. It's important know that an environmental politics must be previously established inside of the Institution of Research, through its Administration Plan.

Another important measurement for an Institution that desires to be environmental correctly is to define some procedures, among them: analyze which are the possible environmental impacts of the research activities developed by the researcher, the legal implication as regards to the discard of materials and the minimization of residues.

2. METHODOLOGY

For the elaboration of this work the following activities were performed:

- (a) Bibliographic research in different databases, such as: books, magazines, specialized sites, technique notes;
- (b) Consultation to the environmental ethic committees of other same genre institutions.
- (c) Consultation to a professional who participated of committees of ethics in scientific research.
- (d) The range of codes, committees and commissions of ethics of the following universities, institutions and foundations were analyzed [6-10]: Universidade Federal do Rio de Janeiro – UFRJ; Instituto de Psiquiatria – IPUB; Universidade de São Paulo – USP; Instituto de Pesquisas Energéticas e Nucleares – IPEN; Instituto de Química-IQ; Universidade Federal de São Paulo – UNIFESP; Universidade Federal de São Carlos – UFSCar; Pontifícia Universidade Católica de São Paulo – PUC; Universidade Estadual de Campinas – UNICAMP; Faculdade de Ciências Médicas-FCM; Instituto de Química-IQ/UNICAMP; Fundação FIOCRUZ e Universidade Estadual de São Paulo-UNESP/Instituto de Química-IQ/UNESP.

3. CONCLUSIONS

The ethics may represent a critical reflection of the morality, in the search of values in the interior of the humane conscience. However, the moral is justified, while regulatory of the relations of a determined social group. The social group is a determining factor to standardize the behavior codes that defined the posture to be adopted by the individual at its time. This behavior establishes by means of its relations with other individuals of the same social environment.

The verification of the range of the CEP allowed observe that institutions of education follow the Resolution 196/96. However, only some of them make a special recommendation about the questions of discard of materials or chemical products in the environment, what it limits its range. The CEA present in its regiments detailed orientations as regards for the discard procedures of chemical products, however was not evidenced any reflection about the attribution, function of the scientist front of the institution in the concerns of the real necessity of that research, i.e., the real representativity of the research is not questioned. In this aspect, becomes necessary establish a connection between the human being rights and the environment front to the scientific research, in order to establish guidelines for scientific development in a sustainable form in all the directions.

There is the necessity of the responsible elaboration of research projects that has as basic principle of do not implicate the environment. However, to guarantee that the projects are elaborated with the minimum of criterion, the institution of research must adopt prevention procedures before its execution. In order to promote prevention procedures that results in reduction of the environmental impacts in institutions of research, were presented some guidelines that chartered the ethics for the environment, which will be able to serve of base for the continuity of this study, that glimpses a “Code of Environmental Ethics”, in specific for the Institute of Energy and Nuclear Research - IPEN. The Environmental Management System (EMS) indicates some guidelines to determine environmental aspects and impacts, by means of the orientations of ISO 14004 [5].

The basic principle of this guideline will be to congregate in a unique document practical of ethical conducts in relation to the environment, with effect from all the centers start to incorporate in its laboratories a measurement of reflection and prevention before developing research projects; i.e., all the centers working according to an unique perspective, the care with the environment in all stages of the project. Amongst the guidelines, the revision of norms and conducts are cited; the conservation of biodiversity, the analysis of cycle of life of the utilized materials and the analysis of risks to the worker.

An environmental ethics for institutions of research may represent a study of the conduct of the scientist front to the environment. Therefore, it is necessary that the researcher be willing to contribute with “sustainable science”, but to this occur is fundamental that the researcher have three basic requirements: the conscience of belonging to the environment, the commitment of do not compromise the life (ecosystems) and be possessor of the ethical values. The Code of Environmental Ethics of an institution as the IPEN must contain the following guidelines:

- 1 - Generate less residues;
- 2 - Treat the generated residues;
- 3 - Discard the treat residues adequately;
- 4 - Substitute toxic products;
- 5 - Search for clean technologies;
- 6 - Save water;
- 7 - Save energy;
- 8 - Protect the fauna;
- 9 - Protect the flora;
- 10 - Contribute for the improvement of quality of life of the population without compromising the environment.

To elaborate a questionnaire to verify if the research projects developed in the institution are environmental correctly, must be taken in consideration the previously guidelines established. Thus, in front of what it was discussed, it is natural that the questionnaire contains the following questions:

1. Can the research project in the development phase generate residue?
2. What is the type of residues (solid, liquid, gaseous). Describe them.
3. What is the class of residue (Class I Hazardous/Class II Not Hazardous/III - Not inert (A) or inert (B)?
4. How this residue will be storage?
5. Is there a possibility to treat the generated residues? Please explain how.
6. Is it foreseen the type of container for collection and storage of the residues?
7. Does the researcher have the knowledge of the existence of clean technologies in its area of performance?
8. Does the researcher is awareness of the implications of the Art.225 of Federal constitution, §1º, item V - control the production, commercialization and the utilization of techniques, methods and substances that hold risks for the life, the quality of life and the environment, as well as of §3º, conducts and activities considered harmful to the environment will subject the infractors, physical or legal people, the penalties and administrative, independent of the obligation to repair the actual damages?
9. About the protection equipment, are there filters or others resources, capable to contain possible atmospheric pollution?
10. Are the others colleagues awareness of the risk represented for your research?
11. Is the risk activity under your responsibility is of knowledge of the institution?
12. What is the social contribution of the research project?

It is necessary understand that in the past the man of science did not have the knowledge necessary to measure the interference extent of its experiments with the nature. However, nowadays we have the resources that allow an efficient evaluate of the interference extend in the environment. The institutions of research are responsible for the projects that they develop and, therefore, they need to follow and evaluate which is the complement contribution of its projects in front of nature, guaranteeing that the principle of the precaution being extrapolated [11]. According to GAARDER [12], after the Universal Declaration of the Human being Rights, the world needs a new universal declaration, of this time of humane obligations for the environment, in reason of that nobody can save us excepted ourselves.

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