

CONTRIBUTION TO BRAZILIAN LAWS IN NUCLEAR ENERGY SECTOR

José Alberto Maia Barbosa and Gian Maria Agostino Ângelo Sordi
 Instituto de Pesquisas Energéticas e Nucleares, IPEN - CNEN / SP
 Av. Professor Lineu Prestes, 2242 – Cidade Universitária
 CEP 05508-000 - São Paulo – SP - Brasil
 e-mail: blosspriester@gmail.com, gmsordi@ipen.br

RESUMO

O presente estudo científico de tema único e bem delimitado, será elaborado com base em investigação original, na seara jurídica brasileira. Objetiva atualizar e revisar a legislação nacional na área da energia nuclear, comparando-a com as recomendações da Agência Internacional de Energia Atômica (AIEA). Contextualizando os pontos fortes e os pontos fracos a partir da comparação. Abordando os riscos e as vulnerabilidades na área da radioproteção ocupacional e ambiental, apontando-se a importância da adoção de ações corretivas, fundamentando-se o direito e sua aplicação, contribuindo com críticas e sugestões, para que haja uma maior e cuidadosa reflexão sobre a questão e, conseqüentemente, para que reformas, sejam realizadas na legislação vigente.

Descritores: *energia nuclear, legislação nacional, normas e regulamentos*

INTRODUCTION

In Brazil, nuclear plants are competitive and are capable to produce energy in a safe way, thus contributing to the stabilization of the national electric system and to the expansion of installed capacity and as alternative source of energy and applications for peaceful purposes, preserving the environment and planet inhabitants. The world is coming across an energy requirement that will hardly covered by renewable sources presently researched. Though there is almost unanimity in the scientific community about the fact that nuclear energy is still a better option to replace oil and coal, environmental restrictions go on vigorous. And consequently, this non-consensus on nuclear energy benefits

ABSTRACT

This work, in a detailed analysis of Brazilian nuclear laws will show connection net and interconnections where it is inserted, by comparing national laws to those international ones, supported in International Atomic Energy Agency (IAEA), proposing to it recommendations, norms and regulations, related to the pacific use of nuclear energy among member countries.

Key words: *atomic energy, brazilian nuclear laws, norms and regulations*

contributes negatively to greenhouse effect, weakening of ozone layer and global warming.

Environmental question emerged in central countries along discussions and concerns which permeated, in XX century, the sixties contra-cultural movement and oil crisis at the beginning of seventies. Life and development styles of these countries started to be contested by what they represented – and still represent – in terms of environment degradation. It is pointed out the industrial growth, the inadequate use of new technologies and sumptuary consumption as causes that enabled the destruction of natural and social life spaces[1].

In Latin America, composed by countries economically dependent on power hegemonic

centers, the picture is more serious, once the environmental degradation is associated to the social degradation. Within economies impoverished by external indebtedness and by aggravation of inequalities between North and South, Latin-American States do not answer to socio-environmental requirements. Exportation agriculture, based on large estate, in monoculture, in quimismo and in mechanization, throws out men from the fields, accelerating the rhythm of demographic concentration. The poor distribution of migrant population and dirt and chaotic industrialization process feed the metropolitan phenomenon[2].

Public Power does not find resources for required investments on infra-structure and urban equipment. Public services system does not answer to society necessities. And consequently, the variety of chronic socio-environmental problems: air contamination, shortage of potable water, sewage thrown directly into water courses, sound pollution, garbage inadequate destination, slumming, lack of a health preventive system, malnutrition and violence. At the end, the "misery pollution"[2].

In a world that has been facing a continuous enlargement of population, the growth of industrial production, the economical expansion and, consequently, a raise in energy consumption, is a primary concern capable to guarantee the supply of energy production, in a reliable way.

This discussion is particularly relevant when we take into account the great changes that have been occurring worldwide over the past 10 years, for example, the raise in oil price, international conflicts and environmental concern.

To explore the nuclear technology contribution and future possibilities of the entire energy sources presently developed, encouraging the use of viable energy sources that gradually are capable to complement and later to replace the oil and the coal by energy sources less detrimental to the environment.

International Atomic Energy Agency (IAEA) has been insisting with governments worldwide to invest in nuclear energy. For the first time in 32 years of existence, the IAEA takes a strong position in favor of nuclear ener-

gy. The agency says that it is essential either to fight global warming or from the viewpoint of electricity supply guarantee, reducing the oil dependency from the Middle East.

Some countries, including USA, India, China and France are already planning new plants.

Germany and Spain are against that. In Brazil, the government seems to have changed its position, with the conversion of the minister Dilma Rousseff and says about finishing Angra 3 and deploying new plants.

Within this context, we initiate to discuss and analyze the following questions, considering the world in a general way and Brazil, in a particular context: the treatment and disposal of radioactive wastes, as well aspects on nuclear safety [2].

The environmentalists question about solutions proposed by nuclear centers intended for the destination of radioactive wastes.

According to them, there will be able to have air contamination caused by explosions or continuous gases leakage from a site (theoretically possible), or water contamination, caused by leakage in coverings which store the wastes and that could reach groundwater. Thus, in special related to high radioactivity wastes, the solution to be traced should take into account the large half-life of radioactive wastes, which attain to thousands of years.

Presently, the more feasible solution for large half-life radioactive wastes would be to keep them cool on the surface for 10 years and later to landfill them in a great depth of adequate geological layers (salt, clay, granite, schist), without underground water circulation and threatless earthquakes. This solution, nevertheless, is not viable due to the high cost and lack of adequate sites for the construction of tanks [2].

The essential approach of thesis is providing to professionals in Brazilian nuclear energy area and to differentiated groups, responsible by formulation and conduction of politics for the sector, or interested in its application and attending to legal requirements that orientate this same sector, within Brazilian Laws revision in nuclear area, subjected to updating and presented in an organized way into three (03) parts – Laws, Decrees and Administrative Rules and compared to International ones, with

this research anchored in International Atomic Energy Agency (IAEA), proposing to it, recommendations, norms and Regulations, related to the pacific use of nuclear energy among member countries[3].

JUSTIFICATIVE

Activities which involve nuclear energy and ionizing radiation use in different activities fields as industry, medicine, agriculture, environmental protection, etc...are initiating in our country, but otherwise, all of them are in a complete development. Instituto de Pesquisas Energéticas e Nucleares (IPEN / CNEN – SP) has being registered a 10% annual increasing in the production of radioisotopes in Medicine and in Industry, growing indexes which has being contributing more and more to the development of new techniques and to the opening of new research centers inn this area in our country.

Since the discovery of X-rays in 1895 and of nuclear radiations in 1896, it was verified that nuclear and atomic radiations, besides their great utility to human activities and to their presence in our daily life, carry sanitary harms requiring consequently to work with safety. For this reason, it was developed a very advanced and sophisticated technology presently considered as vanguard and of disputes at international level.

In our country, the Legislation is very scattered and faulty and in a lot of cases within an extreme protectionism, compelling to alternative processes to replace the use of nuclear energy and ionizing radiations in their activity field, even that at international sphere the preference is nuclear energy and ionizing radiations.

Misinformed and terrifying ad campaigns, on behalf of a minor cause, strictly from commercial concurrency of great unreconciled people interested in getting rid of contestants, at the commerce area of energy generation and nuclear technology do not impart more effect and should be denounced, yes, on behalf of a greater cause[1-2].

It is of great relevance for the country to invest on the developing of new technologies in renewable energy, not only in behalf of environment, but as well as a way of sovereignty and strategy in economical development.

Nuclear energy market is the Century market. The pacific use of nuclear energy is recognized as trump for fighting greenhouse effect and just that, right now compels to the adoption of a solid policy against to a non-proliferation policy.

The cause is fair and of a great magnitude, once it is of humanity interest, a pre-requirement for planet salvation and maintenance of human species[4-5].

OBJECTIVE

The requirement of introduction of safety at a high level of sophistication and harmonization in activities undertaken by the use of nuclear energy and ionizing radiations imposed the introduction of a strict legislation aiming to safeguard the health and welfare of the individual, imposing the paradigm that the use of nuclear energy and ionizing radiation produces a maximum benefit and a minimum detriment to the health of population as a whole and of individuals singularly considered. As we live in a period of great legislative changes, some of them resulting from the actual government, other ones by serious social problems that devastate the country, we were motivated to supply this contribution on Brazilian Legislation theme in nuclear energy sector promoting the interest for the analysis of reviewed material actually employed in benchmark[6].

METODOLOGY

Proposed work is characterized as a documental and bibliographic research, by using specialized information sources, such as: publications from Diário Oficial da União, from International Atomic Energy Agency (IAEA), official body from Organização das Nações Unidas (ONU), which is composed by 13t member countries, and publishes the Handbook on Nuclear Law and the Nuclear Law Bulletin. The material will be collected between the time of their publications up to 2005 year. The analysis will qualitative, by using deductive and comparative methods[7].

EXPECTED RESULTS

In a world that has being facing in a continuous way a raise in energy consumption, it

is possible to use a contribution from nuclear technology, to guarantee the supply of a viable energy, which gradually can complement and in the future to replace oil and coal as a energy source less aggressive to the environment.

A policy of development and modernization in national nuclear legislative area is extremely required, due to the production and dissemination of knowledge which are extremely fast in our global world.

Because of a raising claim in the use of this energy and the necessity of having an updated and rigid regulation on the subject at national and international level, after being consulted the bibliography referenced herein, we observed that there is in the market, at disposal of professionals of this area, it is already obsolete and it is shown in a scattered and not very clear way.

The requirement for the introduction of safety at a high degree of sophistication and harmonization in activities undertaken by the use of nuclear energy and ionizing radiation, determines the introduction of a strict legislation with the purpose of safeguarding individual health and welfare, imposing the paradigm that the use of nuclear energy and ionizing radiation produces a maximum benefit and a minimum detriment to the health of population as a whole and of individuals singularly considered.

So, with the compilation, in an organized way, of the Brazilian legislation in nuclear energy sector and the emphasizing of virtues and faults, strong and weak points, that should be modified, that should have a higher development, etc...at this legislation critically assessed, that constitute original parts at the present work, as well the comparison accomplished in an updated and reviewed from the national legislation, to international legislation, anchored in International Atomic Energy Agency (IAEA) and with the publication of issued results in compendium, we expect to attain our goal, that will be of great validity for professionals in this area.

REFERENCES

[1] DANTAS, Vera. A verdade sobre os rejeitos nucleares. Brasil Nuclear. Rio de Janeiro, n. 31, p. 15-21, jun. 2007.

[2] RIBEIRO, Viviane Martins. Tutela penal nas atividades nucleares. São Paulo: Revista dos Tribunais, 2004. 278 p.

[3] ASSOCIAÇÃO BRASILEIRA DE DIREITO NUCLEAR (Brasil). Legislação nuclear. Rio de Janeiro: Linador, 1980. 139 p.

[4] JOCKYMAN, André; CARDOSO, Beatriz. Mais energia para crescer. França Brasil. São Paulo, n. 281, p. 48-53, abr. 2007.

[5] ODETE MEDAUAR (Brasil) (Org.). **Constituição Federal, Coletânea de legislação de direito ambiental**. 3. ed. São Paulo: Revista dos Tribunais, 2004. 1022 p.

[6] SORDI, Gian Maria Agostino Angelo; TODO, Alberto Saburo. **Fundamentos de tecnologia nuclear: proteção radiológica**. São Paulo: IPEN, 2007. 31 p. Apostila.

[7] IGAMI, M.P.Z.; ZARPELON, L.M.C. (Org). **Guia para a elaboração de dissertações e teses: preparado para orientação dos alunos de Pós-graduação do IPEN**. São Paulo: IPEN, Divisão de informação e documentação científicas, 2002.