

Diagnosis of the Brazilian Nuclear Regulatory Body

Rogério dos Santos Gomes^{a b*}

^aComissão Nacional de Energia Nuclear, Rua Gal Severiano,90 , Botafogo, Rio de Janeiro/RJ, Brasil.

^bAssociação dos Fiscais de Radioproteção e Segurança Nuclear – Caixa postal 56009, Botafogo, Rio de Janeiro/RJ Brasil.

Abstract. *This work has the objective to present the diagnosis of the existing structure in the Brazilian Government to ensure the radioprotection and nuclear safety in the country, being compared the current situation with the conclusions presented in another studies, carried through in last 30 years, with special attention in the existence of the necessary available to support and independence of the national regulatory body for the development of the regulatory inspections activities in the radioprotection and nuclear safety.*

KEYWORDS: *Nuclear Safety, Radioprotection, Independence, Regulatory Body, International Conventions*

1. Introduction

An important discussion is realized at this moment in Brazil, regarding enlargement of the Brazilian nuclear program, with new nuclear power plants constructions, the expansion of the production and radioisotopes uses in the medicine as well as the development, in industrial scale, of all the nuclear fuel cycle. Simultaneously, another discussion in the society and in the Brazilian Parliament, also is increasing, with relation to existing structure in Brazil to guarantee that all nuclear activity maintain a high level of radioprotection and nuclear safety.

The Brazilian Parliament is discussing and seeking a legitimate question answer: *is the country safe? Is there assurance to the people and the environment that all nuclear activities are developed with safety and security?*

This paper presents a diagnosis of the existing regulatory structure for radiation safety and security of nuclear activities in Brazil.

2. The Need for an Independent Regulatory Body

2.1 The Brazilian Nuclear Regulatory System

The national legislative and statutory framework established that the Brazilian National Commission for Nuclear Energy (CNEN) is the nuclear regulatory body, responsible by the nuclear and radioactive safety and security, having the authority to issue regulations, licenses and authorizations related to nuclear and radioactive installations, inspect these facilities and to enforce the laws and its own regulations.

In addition to regulatory body functions, the CNEN is responsible by a broad spectrum of activities related to the nuclear area, as the Brazilian nuclear policy formulation, storage of nuclear waste, provide services to third parties, carrying out scientific research, the production and trading of radioisotopes and radioactive equipments or linked to the nuclear industry, pricing of nuclear materials, promotion and foment the development of nuclear activity, among others.

* Presenting author, E-mail: rsg588@globo.com

The CNEN also has the attribute to perform a monopoly on nuclear activities through its controlled company, the Brazilian Nuclear Industries (INB), responsible for the Uranium exploration, since the mining and the primary improvement until the enrichment, production and assembly of the combustible elements for the reactors of nuclear power plants. Another controlled company by CNEN is the NUCLEP (Nuclebras Heavy Equipments) responsible for the production of equipments to nuclear power plants.

As above displayed, the CNEN is responsible or maintain trade relations and services with the main nuclear and radioactive facilities in Brazil

2.2 Critical to the Brazilian Nuclear Regulatory System

Since the second half of seventies, renowned members of the scientific, environmental, political and business Brazilian community, has been very critical about the non-independence and non-transparency in the nuclear regulatory area. Among the documents produced, in the last 30 years, about the situation of regulatory nuclear system, can up cite [1]:

- Brazilian Physics Society Report (SBF) - 1977;
- Brazilian Nuclear Program Appraisal (Vargas Report) - 1986;
- Report of the Joint Inquiry Parliamentary Committee of the National Congress (CPMI) to investigate the Nuclear Parallel Program - 1990;
- Radioprotection and Nuclear Safety Regulatory Inspectors Association Report (AFEN) - 2000;
- Science and Technology Ministry - Research Units Appraisal (Tundisi Report) - 2002;
- Committee on Environment and Sustainable Development of the Chamber of Deputies Report (Regulatory Inspection and Nuclear Safety Report) – 2006.

In all these documents recurrently are highlighted the necessity to increase the information transparency on the nuclear area, as well as the creation of an independent regulatory body in the nuclear area, through the separation of the activities developed by the CNEN.

As pointed out by the International Atomic Energy Agency, the independence and regulatory effectiveness key elements needed to deliver effective regulation of nuclear safety and security so that government can be assured that nuclear energy and associated technologies can be used safely, that society can have confidence and trust in the regulator and that the nuclear industry can be assured that it is being regulated competently and fairly [2].

Regardless of these various reports, concerning the needed independence and efficiency of the Brazilian nuclear regulatory body, is maintained one governmental infrastructure with a huge centralization of nuclear activities, without independence in regulatory body. The Brazilian nuclear institutional arrangement is based in the absence segregation of regulation, nuclear policy and conduct of operational activities.

2.3 The International Convention on Nuclear Safety and a CNEN's Permanent Illegality Status

Aware of the importance for the international community of ensuring that use of nuclear energy is safe, well regulated and environmentally appropriate and reaffirming the necessity to continue promoting a high level of nuclear safety worldwide, the International Atomic Energy Agency (IAEA) promoted the International Convention on Nuclear Safety to achieve and maintain a high level of nuclear safety worldwide and establish and maintain effective defences in nuclear installations against potential radiological hazards in order to protect individuals, society and the environment from harmful effects of ionizing radiation from such installations, for this, is defined in the convention the necessity for an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy [3].

Brazil signed the International Convention on Nuclear Safety in 1994, and since their promulgation by the President of the Republic, Fernando Henrique Cardoso in 1998 it is part in the Brazilian legal system.

After 10 years, more than enough time for the Brazilian Government promote the effective separation between the functions of the regulatory body and promotion or utilization of nuclear energy, the Brazilian Federal Public Prosecutor, in Representative Action Lawsuit, was consider the CNEN is in condition of permanent illegality, bringing the Brazilian Government to justice through a claim to Federal Court [4].

3. The Law 10308/2001 and The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

The law 10308/2001 establishes the responsibility of CNEN for the site selection, design, licensing, construction, operation and regulatory inspection of radioactive waste repositories, according criteria, procedures and standards established by itself, that is, self-licensing and self-inspection.

The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management was signed by Brazil in Vienna in 1997 and in 2006, after the approvacion by the Parliament, was promulgated that convention through decree 5935/2006, and since then, is part in the Brazilian legal system.

Just as the International Convention on Nuclear Safety, the Joint Convention establishes the necessary effective independence of the regulatory functions from other functions where organizations are involved in either spent fuel or radioactive waste management [5].

The national legislative framework concerning the radioactive waste repositories, as observed, is totally conflicting. The provisions of Law 10308 establishes the non-independence of the regulatory functions, because the same agency is responsible by regulation, licensing, inspection and design, construction, operation and management of radioactive waste repositories, while the Decree 5935 (Joint Convention) establishes the necessary independence of regulatory body responsible by licensing, regulation and regulatory inspection about radioactive waste.

4. The Non-Recognition of the Existence of Regulators Inspectors in Brazil

In Brazil, the public servants who perform the activities of regulation, licensing, audit and inspection in radioprotection and nuclear safety are researchers or technologists, because in 1993 the law 8691/1993 put all CNEN public servants as belongings to the carrer plan of science and technology area. This carrer plan does not give for these public servants the assignment to realize regulatory inspectors and, therefore, is impossible the implementation of enforcement actions relating to the findings of inspections and regulatory reviews and established the extent of authority of the regulatory inspectors [6 and 7].

Obvious is the incoherence and the impropriety in the characterization of regulators inspectors as being a researchers or a technologists, because these are very different professional activities, in anothers words, formally, the regulatory inspections in radioprotection and nuclear safety in Brazil are done by civil servants without assignment in law to realize inspections, therefore there is an inconsistency in the current formalization process these professionals of regulatory body.

The non-formalization of identification inspector's has produced a framework where there are no ensure that these professionals will maintain their function.

4. Conclusions

This work concludes that existing Brazilian legal framework in the radioprotection and nuclear safety area is conflicting with international conventions ratified by the country, that is, the Brazilian model does not follow international conventions, mainly in the ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy.

The non-independence of the regulatory body is also observed through conflicts in the Brazilian legislation on radioactive waste, being aggravated by the non-formal recognition, by the Brazilian law, of the existence of regulators inspectors.

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