

DEVELOPMENT OF NUCLEAR POWER REGULATION IN INDONESIA

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ABSTRACT

This paper describes the recent implementation of new legislation in Indonesia for governing the conduct of activities relating to the use of nuclear materials and energy. A new law enacted in April of 1997 provides for the creation of a nuclear energy executing body and an independent regulatory agency, and establishes the legal basis for the regulation of nuclear activities, the basis governing the management and disposal of radioactive wastes and nuclear materials and the allocation of liabilities for damages arising from nuclear activities.

INTRODUCTION

Although Indonesia is still reviewing its nuclear power options, in anticipation of the possible introduction of a nuclear power plant in the near future, and in order to contribute to the global nuclear safety culture, the Government of Indonesia decided to replace the existing nuclear law No. 31/1964 with new legislation (Indonesia, 1997). The government recognised that many provisions of the old act had become inappropriate, including the presence of both regulatory and promotional functions in the same organisation.

The preparation of the new draft law took place over almost one year in 1995 and it took almost another year for the Indonesian Parliament to review it, to invite input from and to discuss it with social, political and non-governmental organisations (NGOs) and government agencies before it approved the law in February 1997. The Indonesian Government finally enacted the Law No. 10/1997 on Nuclear Energy on 10 April 1997.

The Nuclear Energy Law addresses several key requirements for the successful conduct of Indonesia's nuclear industry, including the establishment of both an Executing Body responsible for nuclear research and development, mining and processing nuclear fuels and materials, production of radio-isotopes and management of radioactive wastes and an independent Nuclear Energy Control Board responsible for regulating nuclear activities. It also sets out the basic principles for regulating practices in the application of nuclear energy, the basic arrangements for managing and disposing of radioactive wastes and the allocation of liability for nuclear damage. The law will be implemented through the application of further government regulations, to be established.

In brief, the Law on Nuclear Energy consists of 10 chapters with 48 articles. One chapter containing eight articles is devoted to the basic principles of the regulation of nuclear energy, one chapter of six articles to the basic arrangement for radioactive waste management, and one chapter containing 13 articles to nuclear damage liability. The penal stipulations are accommodated in one chapter containing four articles.

INSTITUTIONAL BODIES

The law provides for the establishment of:

- a) An Executing Body responsible, in cooperation with other institutions, bodies and private companies, for executing key activities relating to the use of nuclear energy. These include

research and development, exploration, production, processing and fabrication of nuclear fuels and materials, production of certain radio-isotopes and management of radioactive wastes. The development, operation and decommissioning of commercial reactors may now be carried out by state companies, cooperatives or private companies.

- b) A Regulatory Body, the Nuclear Energy Control Board, which will have the power to regulate all facets of any activity using nuclear energy. The Control Board shall establish and implement regulations, licensing processes and inspections for the purposes of controlling the applications of nuclear energy.
- c) A Nuclear Energy Advisory Council, which will advise the government on the utilization of nuclear energy.
- d) State companies that may be required for the commercial use of nuclear energy.

Both the Executing Body and the Nuclear Energy Control Board are responsible and report directly to the President of the Republic of Indonesia.

The establishment of the Nuclear Energy Control Board is already underway. It will consist of several divisions, including: a division of licensing of radioactive materials, radiation and nuclear material, a division of licensing of nuclear installations, a division of inspection and emergency preparedness, a division of the assessment of reactor safety, radiation safety and nuclear materials, a division of development of nuclear safety regulation, a division of safeguards and a division of administration.

The law requires that development of a commercial nuclear power plant can only proceed following consultation by the government of the People's House of Representatives.

BASIC REGULATORY PRINCIPLES

The basic principles of nuclear energy regulation practices in Indonesia set out in the law provide that the control of any nuclear energy application is aimed to:

- a) assure the welfare, security and peace of the people;
- b) assure the safety and health of workers and the public and protection of the environment;
- c) maintain law enforcement in implementation of any nuclear energy application;
- d) increase legal awareness of the user to promote the creation of a safety culture in the nuclear field;
- e) prevent unauthorized changes in the purpose for which nuclear materials are used; and
- f) promote and assure the maintenance of worker discipline in the application of nuclear energy.

Any activity related to the application of nuclear energy is required to be conducted in a manner that observes safety, security and peace, and protects the health of workers and the public and the environment.

The law provides for licensing by the Control Board of personnel and installations. Every application of nuclear energy shall be subject to licensing, except in certain cases that shall be further specified by Government Regulations. The construction and operation of nuclear reactors and other nuclear installations as well as the decommissioning of nuclear reactors shall be subjected to licensing. The requirements and procedures of the licensing process will be further detailed in government regulations.

The Control Board is authorised to license nuclear reactor operators and certain designated employees in other nuclear installations or those using ionizing radiation sources. Such employees will include radiography experts and operators, radiation protection officers, dosimetry officers and maintenance

officers. The licensing process shall include examinations. These requirements will be further detailed in government regulations.

The law provides for the inspection of nuclear installations and any installation that applies ionising radiation by the Control Board with the aim of controlling fulfilment of the requirements in the licensing process and regulations in nuclear safety. Such inspections shall be carried out by an inspector appointed by the Control Board and the results of such inspections shall be transparent and published.

WASTE MANAGEMENT

The Nuclear Energy Law also stipulates some basic arrangement for the management of radioactive wastes. The basic principles underlying the law are that:

- Radioactive waste management shall be conducted to mitigate radiation hazards to the workers, the public and the environment;
- Radioactive waste management shall be accomplished by the Executing Body, which may designate a state or private company or cooperative to conduct commercial waste management activities;
- Users generating low and intermediate level of radioactive wastes shall be obliged to collect, segregate, or treat and temporarily store the waste before its transfer to the Executive Body;
- Users generating high level radioactive wastes shall be obligated to temporarily store the wastes for the period not less than the life time of the nuclear reactor;
- The Executing Body shall provide the final repository for high level radioactive wastes; and
- The provisions on radioactive waste management, including the transportation and disposal of wastes, shall further be administered by government regulations.

The law prohibits the use of any part of Indonesian territory by any foreign or other country as a radioactive waste repository.

LIABILITY FOR NUCLEAR DAMAGE

The Nuclear Energy Law specifies the distribution of liability for nuclear damage. These provisions are generally in accordance with the 1997 Vienna Convention on Nuclear Liability, except as noted below.

Nuclear damage is defined in the law to be any damage that can be in the form of loss of life, any personal injury, or damage to property, contamination and damage to the environment which arises out of radiation or a combination of radiation with toxic, explosive or other hazardous properties *as a result of nuclear fuel criticality* in a nuclear installation or during transportation, including damage as a result of preventive measures and damage as a result of or reinstatement of environmental measures.

According to Article 1 (k) of the 1997 Vienna Convention on Civil Liability for Nuclear Damage stipulates that “Nuclear Damage” means:

- (i) loss of life or personal injury and
- (ii) loss of or damage to property; and each of the following to the extent determined by the law of the competent court:
 - economic loss arising from loss or damage referred in (i) and (ii);
 - the cost of measures of reinstatement of impaired environment, unless such impairment is insignificant;

- loss of income deriving from an economic interest in any use or enjoyment of the environment;
- the cost of preventive measures and further loss or damage caused by such measures;
- any other economic loss, other than any caused by the impairment of the environment, if permitted by the general law on civil liability of the competent court.

To the extent that the loss or damage arises out of or results from ionising radiation emitted by any source of radiation inside a nuclear installation, or emitted from nuclear fuel or radioactive products or waste in, or of nuclear material coming from, originating in, or sent to a nuclear installation, whether so arising from the radioactive properties of such matter, or from a combination of radioactive properties with toxic, explosive or other hazardous properties of such matter.

In general, the Indonesian Nuclear Energy Law and the 1997 Vienna Convention have the same formulation for the definition of nuclear damage. The difference lies in the emphasis on the source causing the damage. The Indonesian Nuclear Energy Law emphasises the criticality of the nuclear fuel. Further, it stipulates that the damage which is not caused by the criticality of nuclear fuel is not included in the category of a nuclear damage (Elucidation of Act, Chapter I - General).

For the definition of nuclear installation, the Indonesian Nuclear Energy Law and the 1997 Vienna Convention came to an almost identical formulation, i.e., any nuclear reactor, any facility for producing nuclear fuel and, any facility where nuclear or spent nuclear fuel is stored. The same is also applied for the definition of nuclear fuel, nuclear reactor and nuclear incident.

LIABILITY SYSTEM

In the Nuclear Energy Law third parties are assured protection with an absolute liability system. The operator shall directly be the responsible party and is liable for damages without any proof required from the third party, regardless of any mistakes by the operator, except when the nuclear incident occurs as a direct result of an international or non-international armed conflict or a grave natural disaster exceeding the established limit of the installation's safety design.

Hence the main principles in the liability systems are:

- absolute liability;
- liability without fault; and
- no person other than the operator of the nuclear installation shall be liable for nuclear damage;

In addition:

- The liability limits are stated by the amount of compensation and the period of time; and
- The operator shall be obliged to have liability coverage in the form of insurance or other financial security.

The 1997 Vienna Convention stipulates that:

- the liability of the operator for nuclear damage shall be absolute (Article IV. 1); and
- except as otherwise provided, no person than the operator shall be liable for nuclear damage (Article II.5).

Further elaboration and comparison of some articles of the Nuclear Energy Law vis-à-vis the 1997 Vienna Convention on Liability for Nuclear Damage provide the following comparison:

No Indonesian Law No. 10/1997 on Nuclear Energy

01 The operator of a nuclear installation shall be
liable for damage suffered by the third party
resulting from any nuclear incident inside the
nuclear installation

(Article 28)

02 (1) In the case of nuclear damage occurring during the transportation of nuclear fuel or spent fuel, the Consignor shall be liable for nuclear damage suffered by the third party

(2) The Consignor under paragraph (1) may transfer the liability to the Consignee or the Carrier, by written agreement.

(Article 29)

03 (1) Where nuclear damage engages the liability, under Article 28, of more than one operator, the operators involved shall, in so far as the damage attributable to each Operator is not reasonably separable, be jointly and severally liable;

(2) The liability of each operator under paragraph (1) shall not exceed each liability limit in respect to any one of them.

(Article 30)

1997 Vienna Convention on Liability for Nuclear Damage

The Operator of a nuclear installation shall be liable for nuclear damage upon proof that such damage has been caused by a nuclear incident -

a) in his nuclear installation;

(Article II.1)

b) involving nuclear material coming from or originating in his nuclear installation;

c) involving nuclear material sent to his nuclear installation;

(Article II.1)

(a) Where nuclear damage engages the liability of more than one operator, the operators involved shall, in so far as the damage attributable to each operator is not reasonably separable, be jointly and severally liable;

(b) Where nuclear incident occurs in the course of carriage of nuclear material, either in one and the same means transport, or, in the case of storage incidental to carriage, in one and the same nuclear installation, and causes nuclear damage which engages the liability of more than one operator, the total liability shall not exceed the highest amount applicable with respect to any one of the pursuant to Article V;

(c) In neither of the cases referred to in subparagraphs (a) and (b) of this paragraph shall the liability of any one operator exceed the amount applicable with respect to him pursuant to Article V.

(Article II.3)

**No Indonesian Law No. 10/1997 on Nuclear
Energy**

- 04 If a nuclear incident has occurred on one location having more than one nuclear installation under one operator, the operator shall be liable for damage in any individual installation.

(Article 31)

- 05 The operator shall not be liable for damage caused by a nuclear incident directly due to an act of international or non-international armed conflict, or a grave natural disaster exceeding the safety by the Nuclear Control Board.

(Article 32)

- 06 (1) If the operator having paid the compensation under Article 28 is able to prove that the nuclear damage resulted from the intent of the third party suffering the damage the operator may be relieved wholly or partly from his obligation to pay compensation;
- (2) The operator under paragraph (a) shall have the right of recourse against the third party who has acted with intent causing nuclear damage.

(Article 33)

**1997 Vienna Convention on Liability for
Nuclear Damage**

Where several nuclear installations of one and the same operator are involved in one nuclear incident, such operator shall be liable in respect of each nuclear installation involved up to the amount applicable with respect to him pursuant to Article V

(Article II.4)

No liability under this Convention shall attach to an operator if he proves that the nuclear damage is directly due to an act of armed conflict, hostilities, civil war or insurrection.

(Article IV.3)

If the operator proves that the nuclear damage resulted wholly or partly either from the gross negligence of the person suffering the damage or from an act or omission of such person done with intent to cause damage, the competent court may, if its law so provides, relieve the operator wholly or partly from his obligation to pay compensation in respect of the damage suffered by such person.

(Article IV.2)

- 07 (1) The maximum limit of liability of the operator shall be not less than Rp. 900 billion for any one nuclear incident in one nuclear installation as well as in transportation of nuclear fuel or spent fuel;
- (2) Any limit of liability under paragraph (1) shall be established by a Presidential Decree;
- (3) The amount fixed for the maximum liability in accordance with paragraph (1) and paragraph (2) does not include interest and costs to be awarded to the Court;
- (4) The maximum limit of liability under paragraph (1) may be reinstated through Government Regulations.

(Article 34)

- 08 (1) The operator shall be liable to the sum of liability pursuant to Article 34 paragraph (1) and (2), covered by insurance or other financial security coverage;
- (2) The provision under paragraph (1) shall also be applicable to the Consignor and Consignee in the case of transportation;
- (3) If there are more than one nuclear installation in one location under the responsibility of one operator, the operator shall be liable for every installation under his management.

(Article 35)

- 09 (1) The insurance company liable for damage due to a nuclear incident shall be obligated to pay the compensation within 7 (seven) days after the date of issue of a statement to the occurrence of a nuclear incident by the Nuclear Control Board;
- (2) The statement under paragraph (a) shall be issued within 3 (three) days from the date of the nuclear incident.

(Article 38)

1997 Vienna Convention on Liability for Nuclear Damage

- (1) The liability of the operator may be limited by the Installation State for any one nuclear incident, either -
 - (a) to not less than 300 million SDRs; or
 - (b) to not less 150 million SDRs provided that is excess of that amount and up to at least 300 million SDRs public funds shall be made available by that State to compensate nuclear damage.

(Article V.1)

2. Interest and costs awarded by a court in actions for compensation of nuclear damage shall be payable in addition to the amounts referred to in Article V.

(Article VA.1)

The operator shall be required to maintain insurance or other financial security covering his liability for nuclear damage in such amount, of such type and in such terms as the Installation State shall specify.

(Article VII.1 (a))

1997 Vienna Convention on Liability for Nuclear Damage

- (Article VI.1 (a))*

As can be seen from the description of the Liability for Nuclear Damage in the previous chapter, many articles of the liability of nuclear damage in the Nuclear Energy Law are almost identical with those in the 1997 Vienna Convention on Civil Liability for Nuclear Damage. It can be stated here that during the drafting process of the Nuclear Energy Law, many articles in the 1963 Vienna Convention on Civil Liability For Nuclear Damage were taken into consideration and adopted or adapted with some modification to match the Indonesian need and Indonesian legislative practice.

There is much work before the Nuclear Energy Control Board to accomplish not only its own organisation but also to draft many government regulations as instructed by the new law. Indeed we have to work very hard to accomplish the job, but we have confidence that, with much assistance from friends abroad, the job can be well done and on time, before the construction of the first nuclear power plant starts.

Nuclear laws, nuclear regulation, nuclear legislation, nuclear liability.