



## **Forum of Nuclear Regulatory Bodies in Africa**

### **Thematic Working Group Regulatory Infrastructure for Nuclear Power Plants (TWG3-NPP)**

**Report on the responses on status of legal framework,  
regulatory standards and safety goals**

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## 1 INTRODUCTION

The Terms of Reference of the TWG3-NPP calls for the convergence on regulatory standards and practices of participating countries. This will be achieved through comparison of regulatory standards and practices of the participating countries and comparing with other international standards and practices such as those prescribed by the IAEA, WENRA, MDEP, USNRC, etc. Surveys in the form of questionnaires will be primarily used to solicit the required information from participating countries.

A questionnaire was compiled and circulated to participating countries on 31 May 2010. The purpose of the questionnaire was to ascertain the:

- (a) Current status of the legal framework for Nuclear Power Plants (NPPs) in participating countries, and
- (b) Status of overall regulatory standards and safety goals in participating countries

The objective of the exercise was to:

- (i) Determine the status of the legal framework and regulatory standards in TWG3 participating countries,
- (ii) Provide a guideline/benchmark of what issues should be covered by the legal framework, and
- (iii) Provide a guideline/benchmark of what areas and topics should be covered by the respective regulatory standards, requirements and/or guidance.

The outcome of the exercise should inform members of gaps in the legal and regulatory framework and could be used as one of the inputs to develop an action plan to close the gaps.

## 2 PURPOSE

The purpose of this document is to document the outcome of the survey and make recommendations on the way forward.

## 3 DEFINITIONS

The following describe the context in which the various terms have been used in the questionnaire:

- **Regulatory Standards** This type of Regulatory documents is issued in the form of regulations or decrees considering the respective legal framework of country.
- **Requirements** These are regulatory requirements that are developed and issued by Regulatory Bodies and are mandatory and becomes legally binding through the authorisation/licensing process.
- **Guidance** Regulatory documents developed to assist authorization holders or/and applicant for authorisations in meeting the regulatory requirements. The Guides provide guidance on how to comply with the Requirements in terms of more detailed actions, conditions or processes. As guidance, the recommended course of action is advisory and hence expressed in the form of 'should' statements

## 4 METHODOLOGY

### 4.1 The Questionnaire

The first part of the questionnaire is to ascertain the status of the legal framework relating to the licensing of Nuclear Power Plants (NPPs) in participating countries. The second part is to determine the status of overall regulatory standards, requirements and/or guidelines as it pertains to NPPs.

### 4.2 Responses to the Questionnaire

It is expected that the responses should reflect the current situation (2010) within the participating country and its regulatory body, not some desired or planned but not yet achieved state (for instance as described by the desired outcome for the topic) and that the responses should be concise, but should include sufficient information to allow for a meaningful understanding and comparison of information between participating countries.

10 of the 12 participating countries at the time completed the questionnaire.

## 5 EVALUATION OF RESPONSES

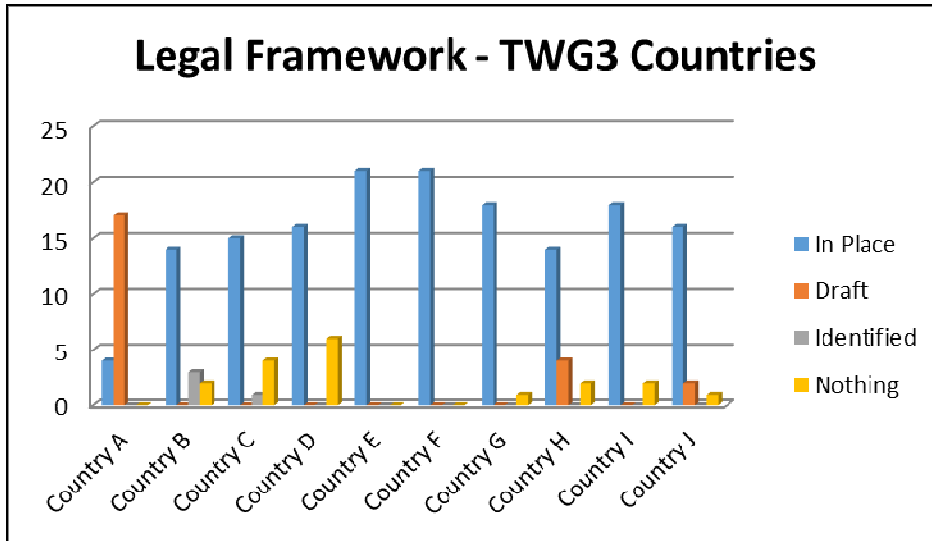
The following colour key was used to evaluate that status of regulatory standards, requirements and guidance of participating countries.

Criteria	Colour
Approved Standard, requirements and/or guidance	In place
Draft Standard, requirements and/or guidance or being reviewed	Draft
Need identified	Identified
Nothing in place	Nothing

The following sections of the report provide the analyses of the responses received. The responses have been categorised using the above criteria. The 22 questions included in the survey in on legal framework are listed in Attachment A. Similarly, the 30 questions included in the survey on the status of Safety Standards and Safety Goals are listed in Attachment B.

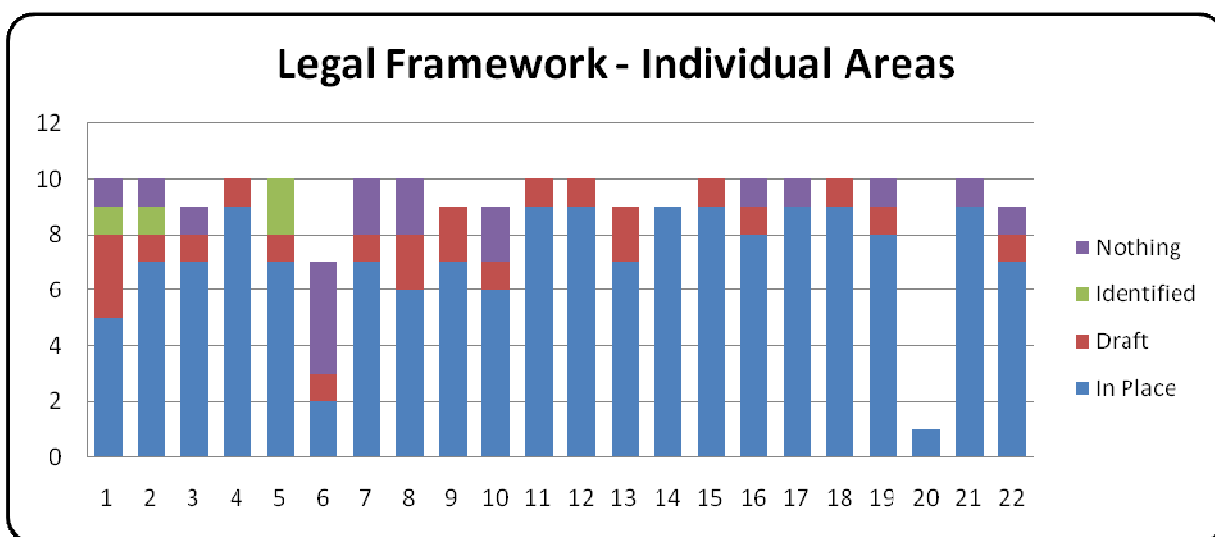
**5.1 Legal Framework - Response Analysis**

Figure 1 depicts the status of legal framework in participating countries for NPP's. In general it can be concluded that the legal framework has either been established or is mostly in an advance stage of development in the countries that participated in the survey.



**Figure 1: Status of Legal Framework for Regulation of NPPs**

From Figure 2 it is apparent that in area 6 on the status of infrastructural arrangements for decommissioning, for close out or closure, site rehabilitation, and safe management of radioactive waste more attention will have to be given to improve the legal framework in this regard by the majority of the participating countries. Area 20 is dependent on the responses to area 19. Since the majority of the responses to area 19 were positive, the singular positive response to 20 is not of a concern.



**Figure 2: Legal Framework - Status in different areas**

5.2 Principal Regulatory Standards and Safety Goals – Response Analysis

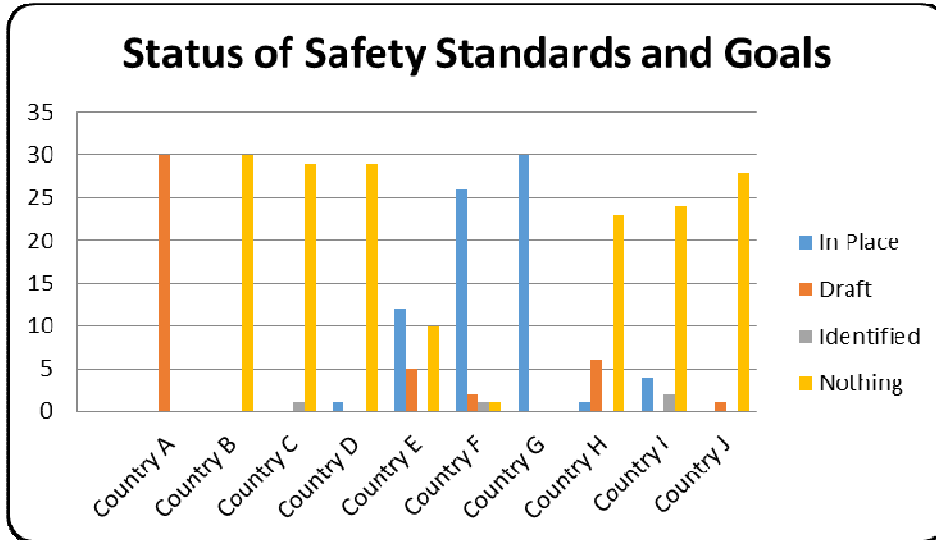


Figure 3: Status of Safety Standards for NPPs in TWG3 countries

Figure 3 clearly shows that for the majority of the TWG3 participating countries that, aside from 4 countries, the required Safety Standards and Goals for NPPs have not been developed or are in an early stage of development. This is expected as only one country has an operating NPPs.

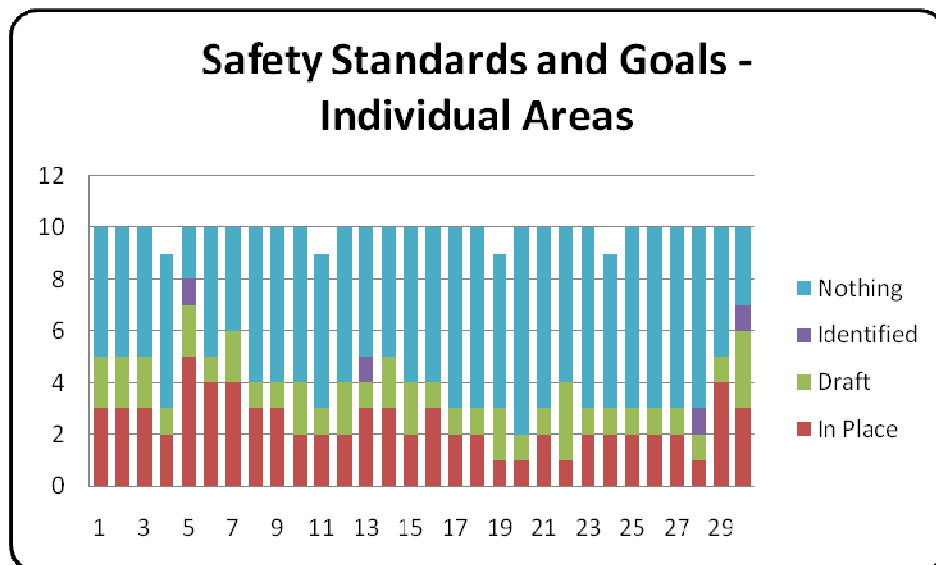


Figure 4: Status of Safety Standards and Goals in different Areas for TWG3 countries

Figure 4 lists the status of safety standards and goals for the individual areas surveyed indicating that most of the countries have essentially no safety standards defined for NPPs.

## **6 CONCLUSION**

The survey provided valuable insights on the status of the Legal Framework in the TWG3 participating countries and has identified gaps in the Legal Framework in the area of waste and decommissioning for most of the respondent countries. It must be highlighted that the survey only provides an overall picture and do not consider the depth and effectiveness of the established frameworks. Member countries should be encouraged to perform a self assessment and possibly initiate a peer review of the status of the legal framework using the IAEA Self Assessment Tool.

In terms of the status of Safety Standards and Safety Goals in respondent countries, it is apparent that only 4 countries have relevant standards either in place or it is in an advance stage of development. This provides an opportunity to benchmark and compare these standards in order to promote harmonisation and to identify potential gaps in the respective standards. This activity will further promote convergence on regulatory standards and practices in TWG3 participating countries.

The countries with little to no standards in place should use the outcome of this exercise to put in place an action plan to develop the respective standards. The TWG3 should focus on standards development and include initiatives in this regard in its work programme. The assistance of the IAEA and international partners should be sought to provide training in this regard.

**ATTACHMENT A: LEGAL FRAMEWORK – QUESTIONNAIRE**

#	Question
1.	Has a legislative and statutory framework been established to regulate the safety of Nuclear Power Plants (NPPs), including Research Reactors, as appropriate?
2.	Does the legislative and statutory framework clearly establish one or more regulatory authorities (collectively, the “Regulatory Body”) whose responsibilities cover NPPs, including Research Reactors, as appropriate?
3.	Is the Regulatory Body effectively independent of organizations and bodies charged with the promotion of nuclear technologies as appropriate?
4.	Does legislation assign responsibility to the Regulatory Body for: <ul style="list-style-type: none"> <li>• authorization;</li> <li>• regulatory review and assessment;</li> <li>• inspection and enforcement;</li> <li>• establishing safety principles, criteria, regulations and guides?</li> </ul>
5.	Are legal and governmental mechanisms in place to ensure that the Regulatory Body has adequate staffing and financial resources to discharge its assigned responsibilities?
6.	Are legal and governmental mechanisms in place to ensure adequate infrastructural arrangements for decommissioning, for close out or closure, site rehabilitation, and safe management of radioactive waste (including spent fuel designated as waste)?
7.	Are legal and governmental mechanisms in place to ensure adequate infrastructural arrangements for the safe transport of radioactive material?
8.	Is there an established system of governmental emergency response and intervention capability to assure effective emergency preparedness?
9.	Does legislation or other governmental mechanism ensure that there are adequate arrangements for physical protection and which does not adversely influence safety?
10.	Does a legal and governmental mechanism provide for a technological infrastructure to ensure the safety of facilities and activities where this is not provided by other organizations?
11.	Is the prime responsibility for safety clearly assigned to the operating organisation?
12.	Does legislation set out effective objectives for protecting individuals, society and the environment from radiation hazards, both for the present and in the future?
13.	Does legislation provide for adequate funding of the Regulatory Body?
14.	Does the legislation ensure that the Regulatory Body has the authority to develop safety principles and criteria?
15.	Does the legislation ensure that the Regulatory Body has the authority to establish regulations and issue requirements and guidance?
16.	Does the legislation ensure that the Regulatory Body has the authority to require an operating organisation to conduct a safety assessment?



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#	Question
17.	Does the legislation ensure that the Regulatory Body has the authority to require an operating organisation to provide any necessary information, including information from its suppliers, even if this information is proprietary?
18.	Does the legislation ensure that the Regulatory Body has the authority to issue, amend, suspend or revoke authorizations and to set conditions?
19.	Does the Regulatory Body develop regulations, requirements and guides in accordance with the legal system of the State and take account of the nature and extent of the facilities and activities and practices to be regulated?
20.	If the Regulatory Body does not issue regulations, requirements and guides, do the legislative and governmental mechanisms ensure that they are developed and approved in a timely manner?
21.	Do regulations establish requirements with which all operating organisations' must comply?
22.	Do regulations provide a framework for more detailed conditions and requirements to be incorporated into individual authorizations?

**ATTACHMENT B: PRINCIPAL REGULATORY STANDARDS AND SAFETY GOALS**

#	Question
1.	Has regulatory standards, requirements and/or guidance been defined relating to the protection of the <b>public</b> against radiological hazards associated with NPPs?
2.	Has regulatory standards, requirements and/or guidance been defined relating to the protection of the <b>workers</b> against radiological hazards associated with NPPs?
3.	Has regulatory standards, requirements and/or guidance been defined relating to the protection of the <b>environment</b> against radiological hazards associated with NPPs?
4.	Has numerical safety goals (deterministic and/or probabilistic; normal operations vs accidents) been defined in regulatory standards to protect persons and the environment against radiological hazards for NPPs?
5.	Has regulatory standards, requirements and/or guidance been defined relating to the responsibility of the applicant and the operating organization?
6.	Has regulatory standards, requirements and/or guidance been defined relating to the effective leadership and management for safety by applicants and operating organizations (Quality Management and Safety Management)?
7.	Has regulatory standards, requirements and/or guidance been defined relating to the optimization of radiation protection and nuclear safety?
8.	Has regulatory standards, requirements and/or guidance been defined relating to the prevention and mitigation nuclear or radiation accidents?
9.	Has regulatory standards, requirements and/or guidance been defined relating to the arrangements for emergency preparedness and response for nuclear or radiation incidents?
10.	Has regulatory standards, requirements and/or guidance been defined relating to the applicant and/or operating organisation demonstrating effective understanding of the hazards and their control for a nuclear site or facility through a comprehensive and systematic process of safety assessment?
11.	Has regulatory standards, requirements and/or guidance been defined relating to the periodic review of safety assessments by operating organizations?
12.	Has regulatory standards, requirements and/or guidance been defined relating to the need for deterministic and probabilistic methodologies to be used for the establishment of the licensing basis for the prevention and the mitigation of incidents and accidents?
13.	Has regulatory standards, requirements and/or guidance been defined relating to the need to prevent incidents and accidents?
14.	Has regulatory standards, requirements and/or guidance been defined relating to the implementation of good engineering practice, proven engineering practices as well as codes and standards?
15.	Has regulatory standards, requirements and/or guidance been defined relating to the staffing, training and qualifications of applicants and operating organizations?
16.	Has regulatory standards, requirements and/or guidance been defined relating to reporting requirements during the entire lifecycle of the facility?

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#	Question
17.	Has regulatory standards, requirements and/or guidance been defined relating to the need to consider operating experience in design and operation of NPPs?
18.	Has regulatory standards, requirements and/or guidance been defined to ensure that the operating organization verifies by analysis, surveillance, testing and inspection that the physical state of the NPP and its operation continue in accordance with operational limits and conditions, safety requirements and the safety analysis?
19.	Has regulatory standards, requirements and/or guidance been defined relating to <b>physical security</b> arrangements that must be established?
20.	Has regulatory standards, requirements and/or guidance been defined relating to the need for engineering and technical support, with competence in all disciplines important for safety, to be available throughout the lifetime of the NPP?
21.	Has regulatory standards, requirements and/or guidance on regulatory oversight during the entire life cycle of the NPP, including siting, design, manufacturing, construction and commissioning, operation and eventual decommissioning, been defined and established?
22.	Has regulatory standards, requirements and/or guidance been defined relating to the <b>siting</b> of NPPs?
23.	Has regulatory standards, requirements and/or guidance been defined relating to the <b>design</b> of NPPs?
24.	Has regulatory standards, requirements and/or guidance been defined relating to the <b>manufacturing</b> of components and parts and construction of NPPs?
25.	Has regulatory standards, requirements and/or guidance been defined relating to tests, qualification and commissioning of NPPs?
26.	Has regulatory standards, requirements and/or guidance been defined relating to the <b>operation</b> , and conduct of operations of NPPs?
27.	Has regulatory standards, requirements and/or guidance been defined relating to the <b>decommissioning</b> of NPPs?
28.	Has regulatory standards, requirements and/or guidance been defined relating to the management and disposal of spent nuclear fuel?
29.	Has regulatory standards, requirements and/or guidance been defined relating to the management of radioactive waste?
30.	Has regulatory standards, requirements and/or guidance been defined relating to the transport of radioactive material?