mineral resources & energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

01 March 2023

**SOCIO-ECONOMIC IMPACT ASSESSMENT SYSTEM (SEIAS)**

**REVISED (2022): FINAL IMPACT ASSESSMENT TEMPLATE –PHASE 2**

**NAME OF THE PROPOSAL: NATIONAL NUCLEAR REGULATOR AMENDMENT BILL……**

1. Please DO NOT ALTER the template and questionnaire
2. Date must be clearly indicated
3. Draft SEIAS report should have a watermark word DRAFT indicating the version and should be accompanied by the supporting documents (draft proposal, M&E plan and pieces of research work)
4. FINAL report will be in PDF format and will be inclusive of the sign-off
5. FINAL report will have the approval stamp of the Presidency on the front cover and will include the signoff
6. Sign off forms are only valid for a period of six months.
7. Bills and Regulations that introduce permitting, licensing and registration system must be accompanied by a streamlined process map and indicate the proposed turnaround time for processing of such.

## PART ONE: ANALYSIS FOR FINAL SEIAS REPORT

*Please keep your answers as short as possible. Do not copy directly from any other document.*

## 1. Conceptual Framework, Problem Statement, Aims and Theory of Change

### 1.1. What socio-economic problem does the proposal aim to resolve?

The Constitution of the Republic of South Africa, 1996 recognises everyone's right to "*(a) an environment that is not harmful to their health or wellbeing; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that…*" To achieve the above Constitutional right, Parliament has established the National Nuclear Regulator Act, 1999 (Act 47 of 1999) and Government, through the National Nuclear Regulator (NNR), implements a programme of action to achieve the objectives of protecting persons, property, and the environment against nuclear damage. Enterprises that are authorised by the NNR to operate nuclear facilities and conduct nuclear activities contribute to economic inclusion and growth, job creation, environmental sustainability amongst other government priorities as envisaged in the National Development Plan, 2030 and other government planning tools.

The Republic of South Africa is a founding member of to the International Atomic Energy Agency (IAEA) and a signatory to some of the Agency's Conventions. In terms of the promotion of nuclear safety, the country is a signatory to the Convention on Nuclear Safety, and it is required to fulfil its obligations by demonstrating how the objectives of the Convention, especially a high level of nuclear safety, have been achieved within the country. High level of nuclear safety within the Republic of South Africa is achieved though the implementation of the NNR Act.

The implementation of the National Nuclear Regulator (NNR) Act, 1999 for over 23 years has met with various challenges. These challenges manifest in identified developments in the nuclear regulatory environment which highlight some limitations and weaknesses in the current legislative framework that governs the NNR. The consequence of the manifestation of these challenges within the current legislative environment is the limitation of NNR's mandate to perform its functions efficiently and effectively in protecting persons, property, and the public from nuclear damage across existing nuclear safety risks.

Developments in the nuclear regulatory environment that highlight some limitations and weaknesses in the current legislative framework which governs the NNR can be summarised as below:

a. Emergence of revised international regulatory best practice (concepts and terminologies) from the IAEA that require alignment in the NNR Act before NNR enforcement to the extent of compliance with international standards. Various concepts and terminologies have changed, and there exists a problem in that the NNR Act does not take this into account. Some examples of these are:

    - Changed definitions based on lessons learned during the tsunami-induced earthquake which resulted in a nuclear accident in Japan amongst others. The area of emergency preparedness and response

has significantly changed to cater for clarity of roles of different stakeholders.

- Liability provisioning for a period within which a person can claim for compensation based on exposure to radiation needed to be aligned to best practice.
- Provisions to adequately address the need for an authorisation holder to set funds aside for rehabilitation, remediation or decommissioning activities later on in the operations of their facilities.

b. A legislative gap in the nuclear safety regulation and the need for clarity regarding the management of radiation sources including devices in which they are incorporated. Inadequate regulation in this area results in radiation sources and devices in in which they are incorporated unaccounted for from a nuclear safety perspective.

c. A legislative gap in the nuclear safety regulation of the Republic's National Defence Force facilities equipment, machinery, or scrap, including remediation or rehabilitation of land, upon a designation for release for civilian use. The liability of the regulator in respect to this problem once realised needs proper regulation to safeguard the protection of persons, property and the environment.

d. A legislative gap in the nuclear safety regulation of occupational exposure of aircrew to cosmic radiation. Regulations to the Civil Aviation Act, 2009 (Act 13 of 2009), issued in terms of section 155(1) of the Act, impose a requirement that "An air service operator shall, for each flight of an aeroplane above 49 000 feet, maintain records so that the total cosmic radiation dose received by each crew member over a period of 12 consecutive months can be determined." However, each flight of an aeroplane below 49 000 feet (most aeroplanes fly at approximately 41 000 feet) remain unregulated for occupational exposure to cosmic radiation. Noting an increase in passenger flights over the years and an advent of longer flying times, the lack of regulation of this are needs to be addressed through a nuclear safety regulation to protect persons that could be affected. The need to regulate this area is informed by guidance documents produced by the International Commission on Radiation Protection and the International Atomic Energy Agency on the topic of cosmic radiation exposure.

e. Governance prescripts have changed, and the Act needs to be aligned with the new changes in relevant legislation.

f. Availability of alternative penalty provision apart from criminal prosecution to encourage better compliance with the Act and therefore improve the protection of persons, property and the environment.

g. Lack of clarity on requirements regarding compensation in the event of nuclear damage arising from military vessels.

h. Lack of an enabling provision to cater for the transfer of responsibility for authorised activities in instances of corporate restructuring such as mergers and acquisitions. This may lead to regulatory uncertainty and limited investment.

1.2. What are the main root causes of the problem identified above?

| What socio-economic problem does the proposal aim to resolve | What are the main roots or causes of the problem |
|---|---|
| Potential nuclear safety risk noting that the NNR Act, since its inception, has not been revised and the IAEA is continuous revising concepts and related terminology based on lessons learnt from nuclear accidents to improve the nuclear safety. | Non-alignment with the International best practice concepts and terminology of the International Atomic Energy Agency. |
| Potential economic loss due to governance compliance challenges owing to outdated governance legislation in the NNR Act. | Non-alignment of the NNR Act with current Governance prescripts. |
| Radiation workers employed at nuclear facilities make a living and sustain local economies, along with those people who are employed in other non-nuclear related work induced by the nuclear facility operations need to be provided, an avenue for claims to be made beyond the 30-year limitation of the NNR Act. | No provision that gives the claimant an opportunity to amend the claim taking in account the aggravation the damage might cause. |
| Potential uncontrolled and unplanned occupation exposure to cosmic radiation through activities that may have a negative health impact. | The current legislation does not clarify the scope of application of the Act. |
| Potential nuclear safety risk to radiation workers in nuclear facility. Some authorisation holders transgress against the NNR Act continually despite receiving warning directives. The directives are proving ineffective in ensuring compliance with the Act. Even though the Act provides for criminal sanction, these are administered by law enforcement beyond the control of the regulator. As an alternative, administrative fines (financial) could be imposed following non-compliance directives to | The Act does not provide for alternative penalty provision to criminal sanction |

| What socio-economic problem does the proposal aim to resolve | What are the main roots or causes of the problem |
|---|---|
| authorisation holders. This could serve as a deterrence to authorisation holders for non-compliance. | |
| NNR over the years experiences the challenges to exercise regulatory oversight over military vessels. The military arena is the sensitive and political landscape. In the event of nuclear damage emanating from the military vessels, the responsible person or state will ensure that sufficient funds are available for compensation and cleaning up of the environment. | No provisions that deals with the compensation in the event of nuclear damage arising from these vessels. |
| A nuclear safety license is core to the proper function and continual economic sustainability of the nuclear safety license holder, including sustaining jobs. On change of ownership or sale of the company, the NNR Act does not allow for the regulator to transfer a nuclear license.<br>The current provision was found to be unreasonably restrictive as it does not allow the regulator to exercise discretion as to the new owner's ability to operate the facility. The proposed provisions seek to clarify that there is no direct transfer, but the authorisation holder must notify the regulator about surrendering the authorisation. The person or entity interested to carry over the nuclear activities should apply to the regulator for the new authorisation. | The Act does not empower the regulator to exercise discretion with respect to the transfer of the authorisation from a holder to a new entity or in respect of the change in the management of a nuclear facility. |
| Nuclear license holders are subjected to stringent requirements to obtain their license. Part of the license conditions is to be subjected to a | Limited enforcement capability of the inspectors. |

| What socio-economic problem does the proposal aim to resolve | What are the main roots or causes of the problem |
|---|---|
| compliance and enforcement checks by NNR-appointed inspectors. However, there is a limitation on the inspectors to issue directives for non-compliance on the spot, based on the seriousness of the non-compliance. As an example: inability to immediately stop the workers conducting their job under unbearable conditions such as exposure to radiation spills or removal of the contaminated equipment from the facility. | |
| When a nuclear facility stops operating, there is a need to have adequate financial provision for rehabilitation, remediation, and decommissioning costs. This would include breaking up of structures, land remediation and release. There is a need for financial resources to clean up the site so that the land can be used again by the public, and this is currently not catered for in legislation such as the NNR Act. | The Act only makes provisions for financial security for nuclear damage and not the rehabilitation, remediation, or decommissioning activities. |
| In terms of the current provisions, if the operator is not in compliance with the licence conditions, the regulator has only one option of revocation of the license which results in the complete withdrawal of the licence.<br>This process does not allow the regulator to temporarily withdraw the licence to allow the licence holder an opportunity to correct the non-compliance or pending necessary enquiries.<br>The proposed measures such as suspension and modification allow for the implementation of corrective actions or amendment of licence conditions. | Limited provisions of revocation and surrendering of nuclear authorisations. |

| What socio-economic problem does the proposal aim to resolve | What are the main roots or causes of the problem |
|---|---|
| Undefined roles and responsibilities of government and regulator in case of emergency situations. | Gaps in the legislative framework for emergency preparedness and response. |

1.3. Summarise the **aims** of the proposal and **how** it will address the problem in no more than five sentences.

- To amend the National Nuclear Regulator Act, 1999, so as to substitute certain definitions and insert new definitions; to authorise the Regulator to perform additional regulatory functions; to provide for financial provision for costs associated with safe rehabilitation or decommissioning of nuclear facilities; to provide for administrative fines; to provide for additional powers of inspectors.
- In more detail the aim is achieved through amendments made in the NNR Act, 1999, in order:
    - To align with international best practice wherein new concepts and terminology have been revised to strengthen the nuclear safety regulatory framework. The Act has been amended to introduce revised and new definitions and further include provisions that empower the regulator to operate within a scope that is clear and mitigates against legislative gaps which limit and weaken the ability of the regulator to perform its functions within scope and effectively.
    - To add to the regulator's scope the regulation of i) occupational exposure of aircrew to cosmic radiation, ii) management of radiation sources including devices in which they are incorporated, iii) the Republic's National Defence Force facilities equipment, machinery, or scrap, including remediation or rehabilitation of land, upon a designation for release for civilian use, and iv) requirements regarding compensation in the event of nuclear damage arising from military vessels. These are all added within the regulator's scope to mitigate against potential lack of nuclear safety oversight which would result in nuclear damage suffered if left unregulated.
    - To align the NNR Act, 1999 to governance prescripts that have changed to mitigate against potential economic loss due to governance compliance challenges.
    - To introduce an alternative penalty provision apart from criminal prosecution that would be utilised as a deterrent to encourage better compliance with the Act.
    - To introduce provisions aimed at addressing the need for an authorisation holder to set funds aside for rehabilitation, remediation, or decommissioning activities later on in the operations of their facilities.

- To introduce provisions that are aimed at establishing better clarity of roles and responsibilities during instances of a nuclear emergency.
- To introduce provisions that are aimed at establishing a national dose register to ensure that historical occupational exposure to radiation is appropriately stored with the intention of having reliable data when the need arises for a claim to be lodged.
- To introduce provisions which allow for a revocation and surrendering of nuclear authorisations, should the need arise to allow the regulator to better manage authorisations within the existing framework.
- To empower inspectors to exercise their duties more effectively and limit nuclear damage to staff operating at nuclear facilities and activities.

1.4. How is this proposal contributing to the following national priorities?

| **National Priority** | **Impact** |
|---|---|
| 1. Building a capable, ethical and developmental state | • The regulator maintains a highly skilled and transformed workforce of about 175.<br>• The over 200 authorisations issued by the regulator are a tool by which economic transformation and job creation has been unlocked and sustained in the country. These authorisations have helped to unlock revenue generating enterprises in mining and mineral processing, scrap processing, energy, research and development amongst others.<br>• The proposals will empower the regulator to appoint personnel responsible for technical services system to support the regulator, e.g. developing and maintaining the national dose register system. |

| National Priority | Impact |
|---|---|
| | • The SACAA will appoint a radiation specialist to assist with the regulation of occupational exposure of aircrew to cosmic radiation.<br>• The proposals intend to build the robust and independent regulator that has a capable workforce catering for current and future needs to ensure that people, environment and buildings are protected against the nuclear or radiation damage. |
| 2. Economic transformation and job creation | • .<br>• Economic transformation and job creation will be sustained through existing facilities and activity sites under regulation of the NNR, with some undergoing expansion. Further, new applications for nuclear facilities and activities will present an opportunity to positively impact on economic transformation and job creation with infrastructure such as the 2500 MW nuclear build programme, Multipurpose Research Reactor and the Centralised Interim Storage facility all earmarked for implementation in the short to medium term. |
| 3. Education, skills and health | • Current and earmarked infrastructure operations that are regulated by the NNR require a workforce that has multiple levels of education and skills. |

| National Priority | Impact |
| --- | --- |
| | The requirement of the workforce applies to DMRE, NNR and authorisation holders. Noting the long-term nature of the operations (some already operating for over 50 years), the need to replace workforce for existing operations is clear. New infrastructure will place an added demand on workforce that is appropriately educated and has requisite skills.<br>• Impact on health because of implementing this proposal will have a positive effect in that current operations that are authorised by the NNR allow for treatment and diagnostic of cancer, with advanced preparations to establish replacement infrastructure which will safeguard this life-saving health service into the future.<br>• The workforce at both the regulator organisation and enterprises which have obtained authorisation to operate from the regulator contribute to a sizeable pool of amongst the most well educated and skilled workforce in South Africa. This is across differing qualification levels from obtaining a trade certificate to a doctorate qualification. They are skilled in artisanry, project management, mineral processing such as extraction, polishing, drilling, blasting, geology, |

| National Priority | Impact |
|---|---|
| | nuclear research, finance, auditing, HR, legal, radiation protection, waste management, safety, security, chemical processing, etc. These skills are needed across the lifecycle of the operation of the facilities therefore in some cases there will be retiring workforce and new entrants to the workforce whilst others are trained to take over specific roles.<br>• Some NNR authorisations are utilised by enterprises to operate facilities from which radiopharmaceuticals are produced for global use in life-saving cancer diagnosis and treatment. Beyond servicing the needs of Republic, over 60 countries globally benefit from these products.<br>• The use of nuclear power at some authorisation holder facilities results in the generation of clean electricity that contributes approximately 5% of the Republic's power needs. In turn this clean electricity helps the country to avoid over 10 million tons of $CO_2$ emissions that would have otherwise negatively affected the health of the public. |
| 4. Consolidating the social wage through reliable and quality basic services | The proposals will not have a direct impact to this priority apart from its authorisations used to operate facilities that generate clean electricity and cancer treatment |

| National Priority | Impact |
|---|---|
| | drugs. Both are basic health and electricity services. |
| 5. Spatial integration, human settlements and local government | |
| 6. Social cohesion and safe communities | Increased awareness for Historically Disadvantages Individuals particularly those residing in the vicinity of nuclear facilities. More people would be able to participate in decision making process on nuclear safety matters. Authorisations issued by NNR are necessary tools to operate facilities and activities to generate services/products such as electricity, health, and mineral production, in a manner than protects persons, property and the environment. |
| 7. A better Africa and world. | Improved nuclear safety and related security of nuclear facilities and activities in line with international best practices will contribute towards a better Africa and the world. |

1.5. Please describe how the problem identified could be addressed if this proposal is not adopted. At least one of the options should involve no legal or policy changes, but rather rely on changes in existing programmes or resource allocation.

| | |
|---|---|
| **Option 1.** | Use existing prescripts as per the NNR Act. This will however not solve the identified problems because there is no basis in law to impose changes in how to regulate nuclear safety. |
| **Option 2.** | Do nothing. State of challenges persists at the expense of the protection of persons, property and the environment. |

## PART TWO: IMPACT ASSESSMENT

**2. Policy/Legislative alignment with other departments, behaviours, consultations with stakeholders, social/economic groups affected, assessment of costs and benefits and monitoring and evaluation.**

2.1. Are other government laws or regulations linked to this proposal? If so, who are the custodian departments? Add more rows if required.

| Government legislative prescripts | Custodian Department | Areas of Linkages | Areas of contradiction and how will the contradictions be resolved |
|---|---|---|---|
| Nuclear Energy Act (NEA)), 1999 (Act 46 of 1999) | Department of Mineral Resources and Energy | Regulation of the acquisition or possession of nuclear material, restricted material, and nuclear-related equipment through the issuing of authorisations. | No contradiction anticipated. |
| Public Finance Management Act, 1999 (Act 1 of 1999) | National Treasury | NNR is a 3A schedule entity relying on government funding. | No contradiction since its obligatory to follow the PFMA prescripts. |
| Criminal Procedure Act, 1977 (Act 51 of 1977) | Department of Justice | Management of penalties and inspections conducted within the law. | No contradiction, adherence to the provisions of the Criminal Procedure Act is compulsory. |
| National Environmental Management Act, 1998 (Act 107 of 1998) as amended | Department of Forestry, Fisheries, and the Environment | Cooperation in the decision-making regarding environmental governance, issuing of relevant authorisations. | No contradiction, NNR provides for radiological impact assessments for consideration on environmental impact assessments. |
| Regulations to the Civil Aviation Act, 2009 (Act 13 of | Department of Transport | Requirement for cosmic radiation monitoring | No contradiction, regulatory gap for aircraft flying below |

| Government legislative prescripts | Custodian Department | Areas of Linkages | Areas of contradiction and how will the contradictions be resolved |
|---|---|---|---|
| 2009), issued in terms of section 155(1) of the Act | | equipment to be installed in aircraft flying above 49 000 feet. | 49 000 feet, to be addressed through NNR Amendment Bill. |

2.2. Proposals inevitably seek to change behaviour in order to achieve a desired outcome. Describe (a) the behaviour that must be changed, and (b) the main mechanisms to bring about those changes. These mechanisms may include modifications in decision-making systems; changes in procedures; educational work; sanctions; and/or incentives.

a) What and whose behaviour does the proposal seek to change? How does the behaviour contribute to the socio-economic problem addressed?

The proposals seek to change the following behaviours:

- Notwithstanding that the military vessels are not fully under the authorisation of the NNR, the person or State responsible for the military vessels in the Republic (South African or foreign military vessels) should know that it will be liable towards the financial implications with regard to the nuclear damage. The Amendment Bill empowers the NNR as the national competent authority on all matter's nuclear safety to account for the availability of liability provisioning in case of nuclear damage. A new requirement is placed on military vessels to protect the NNR mandate.

- There exists a potential for South African National Defence Force decontamination, decommissioning and closure of the facilities, equipment, machinery, or scrap including remediation and rehabilitation of land be designated for released for civil use without regulatory oversight. The regulator will have to confirm that the level of radiation is within its own prescribed limit and issue a certificate of clearance prior the release for civilian use.

- Cosmic radiation exposure of aircrew is currently not regulated by the NNR despite potential of negative health impacts in nuclear safety. Although there is a monitoring requirement on planes flying above 49 000 feet, this is inadequate for NNR to carry out its nuclear safety regulatory mandate in the Republic, with planes that fly below 49 000 feet under no monitoring or nuclear safety regulatory control. This is despite guidance documentation from the International Commission on Radiation Protection and the International Atomic Energy Agency.

- Authorisation and/or licence holders have not physically put aside money to cover the financial costs to decontaminate and decommission their facilities after reaching the operational life end. Lack of adequate financial provision for decommissioning and decontamination activities will pose a challenge when the site has to be cleared to an acceptable radiation dose.

b) How does the proposal aim to bring about the desired behavioural change?

- The scope of the Regulator is extended to address the areas that were not previously covered and have a potential to cause radiation damage. This will result in the NNR being able to utilise the provisions of the Amendment Bill to enforce compliance and drive behavioural change.

- The proposed amendments seek to empower the Regulator to perform the regulatory oversight over decontamination, decommissioning and closure of the National Defence Force facilities, equipment, machinery or scrap, including remediation or rehabilitation of land which is designated for release

for civilian use. This will ascertain liability arrangement in cases where this behaviour may occur and entrench the mandate of the NNR on nuclear safety regulation.

- The proposed amendments introduce the requirements for the military vessels with regard to the financial compensation to the 3rd party should the accident happen in the territorial waters of the Republic. This will ascertain liability arrangement in cases where this behaviour may occur and entrench the mandate of the NNR on nuclear safety regulation.
- New provisions empower the Regulator to have regulatory control over cosmic radiation. This will ensure that persons are protected from any nuclear damage by ensuring the NNR exercises provisions of the Amendment Bill to enforce compliance in a previously unregulated activity that has a nuclear safety impact.
- The new financial security provision requires the operator to set sufficient funds aside for decommissioning and decontamination activities. This will ensure that in cases where normal operations seize at these facilities, the process of moving towards restoration and rehabilitation can begin in earnest without a concern of availability of financial resources.

2.3. Consultations

a) Who has been consulted inside of government and outside of it? Please identify major functional groups (e.g. business; labour; specific government departments or provinces; etc.); you can provide a list of individual entities and individuals as an annexure if you want.

**Consulted Government Departments, Agencies and Other Organs of State**

| **Department's name** | **What do they see as main <u>benefits, Implementation/ Compliance costs and risks?</u>** | **Do they <u>support</u> or <u>oppose</u> the proposal?** | **What <u>amendments</u> do they propose?** | **Have these amendments been <u>incorporated</u> in your proposal? If yes, under which section?** |
|---|---|---|---|---|
| South African National Defence Force | Effectively regulated processes in relation to the release of | Supported | Defence Force have proposed amendments to the content as follows: | Proposals have been incorporated. |

| Department's name | What do they see as main benefits, Implementation/ Compliance costs and risks? | Do they support or oppose the proposal? | What amendments do they propose? | Have these amendments been incorporated in your proposal? If yes, under which section? |
|---|---|---|---|---|
| (**Annexure A1**) | Defence Force facilities for civilian use which ensures the safety of the public. | | - Define dose, cosmic radiation, decontamination, vessels.<br>-Revise exemption, site evaluation and source.<br>Remove "Republic in sect 2(1) (d).<br>Proposed to rephrase section 20 to include facilities not owned by the Defence Force.<br>Activity/Activities (d) "IAEA Transport Regulation". It is proposed that the abbreviation be typed out in full and that the "Regulation" be amended to read "Regulations".<br>Decommissioning". For eased reading, it | |

| Department's name | What do they see as main benefits, Implementation/ Compliance costs and risks? | Do they support or oppose the proposal? | What amendments do they propose? | Have these amendments been incorporated in your proposal? If yes, under which section? |
|---|---|---|---|---|
| | | | is proposed that the clause be amended to read "means all processes leading to the release of a facility, other than a disposal facility, from regulatory control other than confirming the decommissioned status of a facility, which may also include decontamination and dismantling".<br><br>Other issues were clarified in the engagement. | |
| The SA Navy position is attached (**Annexure A2**) | The military vessels are governed by the International Maritime Law. | The original proposal was opposed. | There were no proposals put forward, however the Department has identified the gap that places a | The proposals to directly regulate military vessels were |

| Department's name | What do they see as main benefits, Implementation/ Compliance costs and risks? | Do they support or oppose the proposal? | What amendments do they propose? | Have these amendments been incorporated in your proposal? If yes, under which section? |
|---|---|---|---|---|
| | | | challenge in the NNR being able to exercise is national nuclear safety mandate including the need to ensure liability for nuclear damage has an owner. The provisions were therefore proposed to remedy this gap through requirements for military vessels. | deleted. But insertion of the requirements to address nuclear liability was included (Section 21A). |

**Consulted stakeholders outside government**

| Name of Stakeholder | What do they see as main benefits, Implementation/ Compliance costs and risks? | Do they support or oppose the proposal? | What amendments do they propose? | Have these amendments been incorporated in your proposal? |
|---|---|---|---|---|
| National Nuclear Regulator (NNR) | • Enhanced legal and | Supported | Proposed Amendments are incorporated in the Act. Some | Proposals accepted and incorporated. |

| Name of Stakeholder | What do they see as main benefits, Implementation/ Compliance costs and risks? | Do they support or oppose the proposal? | What amendments do they propose? | Have these amendments been incorporated in your proposal? |
|---|---|---|---|---|
| **(Annexure A3)** | regulatory framework.<br>• Amendments are aligned with international standards.<br>• Improved safety and security on matters related to management of nuclear and radiological material and facilities. | | definitions have been introduced or deleted in order to address the regulatory gap identified or to align with terminology of the IAEA such; Activity/activities, authorisation, authorisation holder, clearance, decommissioning, disposal, dosimetry etc.<br><br>Application of the Act.<br>the [siting], site evaluation, design, manufacturing of component parts, construction, operation, extended shutdown, decontamination, and decommissioning of any nuclear [installation] facility as well as the closure of any radioactive waste disposal facility;<br><br>Objects of the Regulator<br>b) exercise regulatory | |

| Name of Stakeholder | What do they see as main benefits, Implementation/ Compliance costs and risks? | Do they support or oppose the proposal? | What amendments do they propose? | Have these amendments been incorporated in your proposal? |
|---|---|---|---|---|
| | | | control related to safety and security over those activities contemplated in section 2(1) of this Act through the granting of authorisations.<br><br>Several amendments are in the Bill. | |
| South African Civil Aviation Authority (SACAA) (**Annexure A4)** | Enhanced regulatory system for the protection of aircrew against the effects of cosmic radiation | Supported and further proposed the content of the proposal for adoption as South Africa's position at International Civil Aviation Association. The CAA has noted that the proposed amendments may impact on their regulations and will be considering the matter further. | No amendments proposed. | No amendments proposed. |

| **Name of Stakeholder** | **What do they see as main <u>benefits, Implementation/ Compliance costs and risks?</u>** | **Do they <u>support</u> or <u>oppose</u> the proposal?** | **What <u>amendments</u> do they propose?** | **Have these amendments been <u>incorporated</u> in your proposal?** |
|---|---|---|---|---|
| Authorisation and/or licence holders | Administrative fines are likely to be regarded as additional costs and risks to the operations of Authorisation holders. | Not supported. | The comments received during public participation were on the transparency of the process to determine those fees. | Amendment Bill does incorporate administrative fines, which will be gazetted in the regulation and published for comments before implementation. |

b) Summarise and evaluate the main disagreements about the proposal arising out of discussions with stakeholders and experts inside and outside of government. Do not give details on each input, but rather group them into key points, indicating the main areas of contestation and the strength of support or opposition for each position.

At the end of the National Nuclear Amendment Bill public consultation, the impacted and affected stakeholders raised concerns or clarity or provide proposal on the following issues:

- Some definitions have a broader meaning and it could be open to a wider interpretation. Confusion also arising from the use of two terms interchangeably. Further request was made on clarifying the rationale of excluding certain activities or facilities in certain definitions. The Department has addressed the meaning, confusion, and requests for clarity in the rationale of definitions. The revision of definitions was mainly due to the need to align the Act to international best practice; however stakeholder inputs were accommodated as best as this could be accommodated.

- Questioning the constitutional principles of accountability, transparency and openness on certain proposals. The stakeholders raised a concern of limited access to information, e.g. the CEO with the permission of the board can waive certain information from being published. The Department has attended to the stakeholder inputs and subjected the Amendment Bill to legal and constitutional review by the Office of the Chief State Law Adviser, which has certified the Amendment Bill without constitutional concerns.

- The issue of putting additional financial resources aside for decontamination and decommissioning activities, administrative fines. Additional financial resources for decontamination and decommissioning activities is a matter which the NNR currently regulates using license conditions, however this approach lacks stringent compliance requirements to the operators hence the need to mitigate against this gap. Administrative fines are widely used to encourage compliance and the Department will still go through a process of publishing regulations for consultation with the public prior to their implementation.

- The challenge with the nuclear information been destroyed or removed from the records taking into consideration that some of the events that link to such information, such as occupational exposure to radioactivity, might only surface many years later. In response to this issue, the Amendment Bill makes provision for the regulator to setup and maintain a national dose register.

- On what ground can exemption be granted if the dose or risk is ignored? Supporting evidence to grant an exemption must be scientific and defensible. In response to the comment, the Amendment Bill clearly defines what “exemption” means and links the relevant criterion to be used to determine such in regulations in terms of section 36.

2.4. Describe the groups that will benefit from the proposal, and the groups that will face a cost. These groups could be described by their role in the economy or in society. Note: NO law or regulation will benefit everyone equally so do not claim that it will. Rather indicate which groups will be expected to bear some cost as well as which will benefit. Please be as precise as possible in identifying who will win and who will lose from your proposal. Think of the vulnerable groups (disabled, youth women, SMME), but not limited to other groups.

| **List of beneficiaries (groups that will benefit)** | **How will they benefit?** |
|---|---|
| The Public | • Enhanced protection of the public, workers, property and the environment against possible nuclear damage.<br>• Sufficient claiming period for possible damages suffered by victims of nuclear accident or nuclear incident.<br>• Clarity of roles of various stakeholders involved in nuclear emergency preparedness and response.<br>• Alignment to international best practices on nuclear safety matters. |
| Department of Mineral Resources and Energy (DMRE) | Compliance with governance prescripts to ensure that the country has an empowered, effective, and efficient regulator |
| NNR | • Empowered nuclear safety and related security Regulator.<br>• Strengthened nuclear safety regulatory framework.<br>• Increased enforcement powers. |
| Civil society (e.g. Labour, NGO's and other organised groups) | • Reassurance to the civil society of enhanced/improved regulatory system which applies to nuclear operations with areas where representatives reside and work.<br>• Transparency, accessibility, confidence building based on proactive and effective regulatory framework. |
| South African National Defence Force and SA Navy | • An enhanced regulatory process with regards to the release of land and facilities intended for civilian use. Clarified financial responsibilities from the military vessels.<br>• |

| List of beneficiaries (groups that will benefit) | How will they benefit? |
|---|---|
| South African Civil Aviation Authority | • Benefit in protection of aircrew from cosmic radiation damage through an enhanced regulatory process with regards to monitoring. |
| Authorisation holders (e.g. Eskom, Necsa, mines, ) | • A more flexible licensing regime allowing for sustainable business operations.<br>• Access to the national dose register for the monitoring of occupational exposure.<br>• Positive public acceptance of nuclear operations anchored on strengthened nuclear safety. |

| List of cost bearers (groups that will bear the cost) | How will they incur / bear the cost |
|---|---|
| Operator and Government | Provision for the nuclear liability post claiming period. |
| Authorisation holders (such as nuclear facilities owners, mining and mineral reprocessing companies, scrap processors and other small users) | • The operator will be required to set money aside for the Decontamination and Decommissioning activities for post normal operations.<br>• Authorisation holders will be required to pay administrative fines for violation of conditions of the Act. |
| SA Navy | • Take into consideration the requirements pertaining to military vessels entering or sojourning the Republic's waters with respect to financial security to cover compensation in the event of nuclear damage. |
| NNR | • Ensure capacity to regulate as per enhanced nuclear safety regulatory framework.<br>• Advisory work performed as a National Competent Authority during nuclear emergency.<br>• Formal training of inspectors.<br>• Establishment of the national dose register. |

| List of cost bearers (groups that will bear the cost) | How will they incur / bear the cost |
|---|---|
| Civil aviation industry | • Cost associated with enhanced regulation of aircrew for occupational exposure to cosmic radiation. |
| South African National Defence Force | Measures that attract cost when releasing equipment / land to the public domain. |

2.5. Describe the costs and benefits of implementing the proposal to each of the groups identified above, using the following chart. Please do not leave out any of the groups mentioned, but you may add more groups if desirable. Quantify the costs and benefits as far as possible and appropriate. Add more lines to the chart if required.

*Note: "Implementation costs" refer to the burden of setting up new systems or other actions to comply with new legal requirements, for instance new registration or reporting requirements or by initiating changed behaviour. "Compliance costs" refers to on-going costs that may arise thereafter, for instance providing annual reports or other administrative actions. The costs and benefits from achieving the desired outcomes relate to whether the particular group is expected to gain or lose from the solution of the problem.*

*For instance, when the UIF was extended to domestic workers:*

- *The implementation costs were that employers and the UIF had to set up new systems to register domestic workers.*
- *The compliance costs were that employers had to pay regularly through the defined systems, and the UIF had to register the payments.*
- *To understand the inherent costs requires understanding the problem being resolved. In the case of UIF for domestic workers, the main problem is that retrenchment by employers imposes costs on domestic workers and their families and on the state. The costs and benefits from the desired outcome are therefore: (a) domestic workers benefit from payments if they are retrenched, but pay part of the cost through levies; (b) employers pay for levies but benefit from greater social cohesion and reduced resistance to retrenchment since workers have a cushion; and (c) the state benefits because it does not have to pay itself for a safety net for retrenched workers and their families.*

| Group | Implementation costs | Compliance costs | Costs/benefits from achieving desired outcome | Comments |
|---|---|---|---|---|
| NNR | Cost for the technical services, e.g. Cost associated with the national dose register infrastructure. Customise and upgrade of existing dose register. The costs will include IAEA cost for expert mission R582, 679.00; cost for local regulators participating and hosting IAEA Expert Mission, Steering Committee meetings, training course - R212 000; ICT cost for training, documentation- R26 000<br><br>Use of consultant or local developer in medium term.<br>• Appointment of permanent NNR staff member.<br>• Steering Committee meeting attendance by Data providers.<br>• Travelling to implement the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) project.<br>• Modifications of databases at Data Provider | | • Integrated system of records of occupational doses.<br>• Confidence in record keeping.<br>• Evaluation of dose trends and statistics.<br>• Reporting purposes e.g. annual report, UNSCEAR.<br>• Data for health research and epidemiological studies (consent needed).<br>• Provide dose histories to individual workers and organizations for work planning.<br>• Compensation and litigation cases.<br>• Compliance with related dose limits.<br>• Cover all type of external/internal occupational exposure, employers | None. |

| Group | Implementation costs | Compliance costs | Costs/benefits from achieving desired outcome | Comments |
|---|---|---|---|---|
| South African Civil Aviation Industry | Cost associated with the enhanced regulation of cosmic radiation | • Cost for annual medical assessment for the aircrew.<br>• Cost for radiation equipment for airline below 49000 feet.<br>• Cost implication for rotation of staff crew.<br>• Initial Safety Assessment (to be conducted by the Radiation Protection Specialists).<br>• Radiation Protection Specialists costs, R1, 500 per hour depending on use, total of R1, 440, 000 (estimate 20 hours/week projected for the year. | Protection of aircrew occupational exposure to cosmic radiation. | None. |

| Group | Implementation costs | Compliance costs | Costs/benefits from achieving desired outcome | Comments |
|---|---|---|---|---|
| Other Authorisation Holders | Application fee for different authorisations.<br><br>Currently this is aggregated across five categories depending on the type of operation, from an annual fee of R71, 573.00 (category 1 with approximately 42 license holders) to R1, 359, 899) (category 5 with approximately 10 license holders). Ad hoc regulatory activities are costed differently depending on the activity demands and scope. | • Annual license fee.<br>• Financial responsibilities of applicants for and holders of authorisations | Adequate financial resource set aside towards the rehabilitation, remediation or decommissioning activities | None. |

| | | | | |
|---|---|---|---|---|
| South African National Defence Force | • Cost associated with decontamination and decommissioning of Defence Force facilities;<br>• Cost associated with the clearance of equipment, machinery or scrap;<br>• Cost associated with the rehabilitation of Defence Force land upon a decision to release these for civilian use | The cost associated with the application and authorisation of decontamination and decommissioning of the SA National Defence Force facilities, clearance of equipment and rehabilitation of the land to be released to the public domain is dependent on the application.<br><br>**Cost drivers**<br>The currently authorised activities are already budgeted for by the defence force. Annual license fee. Is R535, 470.00 (FY 20/21 license fees for Category 4) which includes following costs: In the case of additional equipment, machinery or land to be released into the public domain (for civilian use) once off cost would be applicable related to development of safety documentation and evaluation of the same by the NNR. | Protection of the public against potentially contaminated land and equipment. | This activity is not new. The SA National Defence Force has worked with NNR on the matter before. |

| Group | Implementation costs | Compliance costs | Costs/benefits from achieving desired outcome | Comments |
|---|---|---|---|---|
| SA Navy | Not known subject to provisions International Maritime Law and other applicable legislation, such as the Defence Act. | Cost associated with the financial security. | Adequate cost to cover compensation in the event of nuclear damage. | The gap that was identified during the process of addressing public comments. |
| Department of Mineral Resources and Energy | Cost associated with gazetting various legislative instruments linked to this Amendment Bill (e.g., gazetting, translation, etc.). | **None.** | Better compliance with provisions of the Act, once promulgated.<br><br>More effective and efficient nuclear safety regulator resulting in better protection of persons, property, and the environment. | **None.** |

2.6 Cost to government: Describe changes that the proposal will require and identify where the affected agencies will need additional resources

a) Budgets, has it been included in the relevant Medium Term Expenditure Framework (MTEF).

- NNR have historically received an average of 18% of its total revenue from the Government grant catered for though a grant that flows from the Medium-Term Expenditure Framework (MTEF) planning tool. The Government grant is received as a direct Parliamentary appropriation (Division of Revenue Act) under the Department of Mineral Resources and Energy's Vote 34 budget allocation. The current MTEF up to Financial Year 2024/25 makes a total allocation of R142, 775, 000.00, for which the FY2022/23 made an allocation of R46, 769, 000.00.

- NNR has historically received 82% of its total revenue from fees charged to authorisation holders & licence applications levied and revised on approximately annual basis. In the 2021/22 FY, authorisation and application fees amount to R235, 288, 241.00. The mandate of the NNR is expected to be funded on the same model moving forward into the NNR Amendment Act, once promulgated.

- The SA Navy will have to demonstrate that there is a sufficient financial security to cover the compensation in the event of nuclear damage for military vessels propelled by nuclear power or that have on board any radioactive material which enter or sojourn the Republic's water. Budgeting for this expenditure as a requirement only in cases where it is needed is not possible to estimate as the requirements could be fulfilled through other means such as financial guarantees or any other acceptable means.

- The cost associated with the application and authorisation of decontamination and decommissioning of the SA National Defence Force facilities, clearance of equipment and rehabilitation of the land to be released to the public domain is dependent on there being an application made. Since the SANDF is an NNR authorisation holder, costing for such authorisations is already catered for within MTEF budgeting and any additional amount would need to be handled as they arise with release of such equipment and land to public.

b) Staffing and organisation in the government agencies that must implement it (including the courts and police, where relevant). Has it been included in the relevant Human Resource Plan (HRP).

- The SACAA agreed with the proposed amendment to monitor radiation for aircrew. They are aware of the financial requirements towards the appointment of a radiation specialist. However, introduction of new staffing will be informed by the timing of the implementation of the revised legislation, with current estimate of R1, 500 per hour, totalling R1, 440, 000.00 for an estimate of 20 hours a week projected annually. Modalities of collecting revenue to fund this activity are yet to be finalised however the adjustment of authorisation fees could be an appropriate avenue for further consultation. An update of the existing Human Resource Plan would need to be instituted.

- The decontamination, decommissioning and closure of the South African National Defence Force equipment, facilities, machinery, or scrap, including the remediation and rehabilitation of land is not a new activity. The South African National Defence Force and NNR has done this previously but is not catered for in the current Act. Staffing implications for existing activities is catered for within existing Human Resource Planning.

*Note: You MUST provide some estimate of the immediate fiscal and personnel implications of the proposal, although you can note where it might be offset by reduced costs in other areas or absorbed by existing budgets. It is assumed that existing staff are fully employed and cannot simply absorb extra work without relinquishing other tasks.*

2.7 Describe how the proposal minimises implementation and compliance costs for the affected groups both inside and outside of government.

**For groups outside of government (add more lines if required)**

| Group | Nature of cost (from question 2.6) | What has been done to minimise the cost? |
|---|---|---|
| Applicants for and holders of nuclear authorisation | Compliance cost associated with nuclear authorisation | Compliance cost does not have to be minimised because the applicants for and holders of nuclear authorisation should provide for the adequate financial responsibilities towards rehabilitation, remediation, or decommissioning. This cost will be far lesser as compared to the cost of treatment and compensation if the public is exposed to radiation.<br><br>Government revises authorisation fees annually based on NNR recommendation. Similarly adequate financial provision for rehabilitation, remediation and decommissioning costs are revised as needed. Minimisation of these compliance costs is considered within reasonable and justifiable grounds where necessary. |

**For government agencies and institutions:**

| Agency/institution | Nature of cost (from question 2.6) | What has been done to minimise the cost? |
|---|---|---|

| | | |
|---|---|---|
| National Defence Force and Navy | Compliance cost associated with the decontamination, decommissioning and closure of National Defence Force equipment, facilities or scrap including the remediation and rehabilitation of land.<br><br>Compliance cost associated with the requirement to provide financial security to cover compensation in the event of nuclear Damage for military vessels. | This is not a new activity so it has been previously done and budgeted for. The cost does not need to be minimised but to ensure that there is a safe release of the National Defence Force assets for civilian use.<br><br>The cost does not need to be minimised but the responsible person or State should demonstrate provision of financial security in the event of nuclear damage by a military vessel. |
| NNR | Implementation cost associated with expanded scope of regulation. | Preparatory work done to establish the national dose register reduces the cost of authorisations holders to hold individual occupational dose records of employees. |
| SACAA | Compliance cost associated with the regulation of cosmic radiation (appointment of a radiation specialist), this is R1, 440, 000 for an estimate of 20 hours a week projected annually | This is a new area that the NNR need to regulate. The cost does not have to be minimised but ensure that all the requirements for regulating the cosmic radiation are in place for safety of the aircrew. However, the compliance cost will be far lesser as compared to the cost associated with the costs associated with the compensation towards the occupational ailments related to the cosmic radiation. |

2.8 Managing Risk and Potential Dispute

*a)* Describe the main risks to the achievement of the desired outcomes of the proposal and/or to national aims that could arise from implementation of the proposal. Add more lines if required.

*Note: It is inevitable that change will always come with risks. Risks may arise from (a) unanticipated costs; (b) opposition from stakeholders; and/or (c) ineffective implementation co-ordination between state agencies. Please consider each area of risk to identify potential challenges.*

- The main risk is inadequate regulation of areas that present a risk for potential nuclear damage, such as i) cosmic radiation of aircrew, ii) release for public use of equipment and land that might has radiation contamination under the SANDF, iii) military vessels that are propelled by nuclear power or have on board radioactive material, etc. Root cause of this is a lack of empowering provisions that hinders the regulator to fully exercise its nuclear safety oversight mandate in all areas that have a potential to cause nuclear damage.
- Failure to provide an integrated system that capture accurate historical occupational dose data in support of claims or disputes resulting in the ability for members of the public to benefit from liability provisions of the NNR Act. This would negatively affect member of the public from accessing necessary compensation for injury on duty and affect livelihoods.
- Non-alignment with international best practice and lessons learnt in terms of technical concepts and related terminology. A weaker domestic legislative framework with respect to nuclear safety and related security matters that is misaligned to international best practices has a negative effect to the standing of the National Nuclear Regular and the Republic.
- Non-alignment of the NNR Act to governance prescripts within which the Act operates could lead to potential economic loss for the National Nuclear Regulator.
- Lack of alternative penalty provision to encourage compliance with the NNR Act could lead to costly litigation costs to enforce compliance using through the criminal justice system. Instead, less costly means to obtain adherence to the NNR Act could work better.
- Inadequately mitigated environmental risk due to a lack of adequate financial security arrangements with respect to costs associated with rehabilitation, remediation, or decommissioning activities in case of potential nuclear damage.

b) Describe measures taken to manage the identified risks. Add more rows if necessary.

*Mitigation measures means interventions designed to reduce the likelihood that the risk actually takes place.*

| Identified risk | Mitigation measures |
|---|---|
| Inadequate regulation of areas that present a risk for potential nuclear damage for the NNR | Expanding the regulator's scope to exercise its mandate through amending the current Act. |
| Failure to provide an integrated system that capture accurate historical occupational dose data | Added a provision to cater for the NNR to establish a national dose register. |
| Non-alignment with international best practice and lessons learnt in terms of technical concepts and related terminology | Added and amended numerous provisions to address this in Amendment Bill. |
| Non-alignment of the NNR Act to governance prescripts | NNR Act has been amended to align the Amendment Bill to latest governance prescripts. |
| Lack of alternative penalty provision to encourage compliance with the NNR Act | Administrative fine provisions introduced in the Amendment Bill. |
| Inadequately mitigated environmental risk due to a lack of adequate financial security arrangements | NNR Act has been amended to address this challenge by addition relevant provisions. |

c) What kinds of dispute might arise in the course of implementing the proposal, whether (a) between government departments and government agencies/parastatals, (b) between government agencies/parastatals and non-state actors, or (c) between non-state actors? Please provide as complete a list as possible. What dispute-resolution mechanisms are expected to resolve the disputes? Please include all of the possible areas of dispute identified above. Add more lines if required.

*Note: Disputes arising from regulations and legislation represent a risk to both government and non-state actors in terms of delays, capacity requirements and expenses. It is therefore important to anticipate the nature of disputes and, where possible, identify fast and low-cost mechanisms to address them.*

| **Nature of possible dispute (from sub-section above)** | **Stakeholders involved** | **Proposed Dispute-resolution mechanism** |
|---|---|---|
| The operator may not agree with the enforcement action of the NNR. | NNR and nuclear authorisation holders | The disputes can be settled using the appeal process defined in the Act. |
| Additional costs associated with the nuclear facility towards the rehabilitation, remediation or decommissioning activities. | NNR and nuclear authorisation holders | The disputes can be settled using the appeal process defined in the Act. |
| Introduction of administrative fines. | NNR and nuclear authorisation holders | Administrative fines will be prescribed in a process that has an element of consultation, of which the authorisation holders will be part of the stakeholders consulted. Further to this, the disputes can be settled using the appeal process defined in the Act. |
| Adequate financial security requirement for military vessels | NNR and SA Navy | Intergovernmental Relations Framework Act, 2005 (Act 13 of 2005) will be used to foster close cooperation to minimise disputes. Further, the disputes can be settled using the appeal process defined in the Act. |
| Implementation and compliance costs relating to cosmic | NNR and SACAA | NNR Act makes provision for establishment of cooperation agreements with various entities. One is |

| Nature of possible dispute (from sub-section above) | Stakeholders involved | Proposed Dispute-resolution mechanism |
|---|---|---|
| radiation regulation by NNR | | SACAA for which there exists such an agreement in place. Disputes can be handled using this agreement, failing which the Act has an appeals process. |

2.9 Monitoring and Evaluation

*Note: Sound implementation of policy and legislation is due to seamless monitoring and evaluation integration during the policy development phase. Policies and legislation that are proficiently written yet unable to report on implementation outcomes are often a result of the absence of an M&E framework at the policy and legislative planning phase. It is therefore imperative to state what guides your policy or legislation implementation monitoring.*

2.9.1 Develop a detailed Monitoring and Evaluation Plan, in collaboration with your departmental M&E unit which should include among others the following:

2.9.1.1 Provide clear and measurable policy or legislative objectives

The proposal aims to amend the National Nuclear Regulator Act, 1999, to substitute certain definitions and insert new definitions; to authorise the Regulator to perform additional regulatory functions; to provide for financial provision for costs associated with safe rehabilitation or decommissioning of nuclear facilities; to provide for administrative fines; and to provide for additional powers of inspectors.

2.9.1.2 Provide a Theory of Change clearly describing the following components:

- Impact: the organisational, community, social and systemic changes that result from the policy or legislation;
    - The proposal brings forward changes that would add to the mandate and responsibility of the NNR, which has already been established in 1999, an organisation that has a track-record of high performance (see published NNR Annual Reports). The impact on the organisation, community, social and systemic changes that result from the legislation is expected to bring forward i) an effective nuclear safety regulation of nuclear facilities and activities, ii) an increased stakeholder trust towards operators, the NNR and government, and iii) an increased ability to secure new investment for authorisation holders.
    - The above assessment is based on a number of factors such as: i) the organisation (NNR) has an established workforce of 175 staff capacity that is well qualified and well trained in the various fields that are linked to the delivery of the nuclear

safety mandate, ii) in addition to this, the organisation makes use of a complementary independent Technical Support Organisation when needed, to fulfil additional technical project requirements, iii) NNR is operating based on well-established business processes and infrastructure. The new mandate is expected to be largely accommodated in existing systems and operations with implementation and compliance costs minimised as best as possible, and iv) existing provisions to safeguard the role of the community stakeholders in participating during processes of implementing the NNR Amendment Bill have been retained and apply in the same manner for the additional mandate areas.

- Outcomes: the specific changes in participants (i.e. beneficiaries) behaviour, knowledge, skills, status and capacity;
    - The main benefit that the proposal brings is an enhanced protection of the public, workers, property, and the environment against possible nuclear damage. Beneficiaries will now have a sufficient claim period for possible damage suffered because of a nuclear accident or incident. More clarity, accessibility, transparency, confidence building is enhanced across the scope of regulation, and in addition on the role of each stakeholder for emergency preparedness and response arrangements. The areas highlighted above will positively impact nuclear safety outcomes in a manner that shapes behaviour towards more compliance with the NNR Amendment Bill and build trust in the ability of the NNR to deliver its mandate. The NNR will be able to better inform its additional training needs to add skills to strengthen the capacity of its staff to deliver on the additional mandate areas. The NNR will be positively impacted as a national competent authority that delivers on the most needed assurance and compliance regarding nuclear safety, further building on public confidence in the regulator. Limitation in potential accidents and sustainable operations are expected to be positive outcomes of implementing the proposal.
- Outputs: the amount, type of degree of service(s) the policy or legislation provides to its beneficiaries;
    - The expected amount and type of service delivered as a result of implementing the proposal is the retention of the over 200 authorisations issued to enterprises that trade in i) the delivery of clean electricity (average 8 billion kilowatt-hours per year), cancer treatment and diagnostic radiopharmaceuticals/medicine (servicing over 60 countries with more than 40 million beneficiaries), multiple research and innovation outputs in the nuclear technology field with Necsa delivering on average over 55 such outputs annually, and the retention of some mining operations that generate high value products for the industry. The services highlighted above are delivered at a high level and come from operations that are highly regulated in compliance with the law. The beneficiaries need these services to maintain day-to-day life noting that the

services are delivered direct (electricity and cancer treatment) and indirect (products manufactured out of the mining resources). NNR will maintain its base of producing the following outputs: i) 209 authorisations, ii) 37 compliance assurance reports annually, iii) 9 safety evaluation reports annually, iv) 7 position papers, and v) 1 monitoring and evaluation report annually.

- Activities: the identified actions to be implemented
    - The following activities are highlighted: i) process applications for authorisation for nuclear facilities and activities including areas of additional mandate, ii) develop nuclear safety regulatory documentation, iii) establish a national dose register and store relevant occupational dose rate data, and iv) conduct public awareness events.
- Input: departmental resources used in order to achieve policy or legislative goals i.e. personnel, time, funds, etc.
    - The Department of Mineral Resources and Energy is expected to utilise existing resources in processing NNR Amendment Bill legislation including relevant subordinate legislation. This is expected to be anchored for initial development on the established Directorate: Nuclear Policy personnel and funding, supported by Chief Directorate: Nuclear, Electricity and Gas Policy and the relevant high-level structure personnel. The Directorate: Nuclear Policy budgetary provision makes provision for the required expenditure items including where necessary any procured services in respect of research needed to support the proposals brought forward. The NNR will continue to need sufficient financial and human resources. Other key inputs that are needed to implement the proposal include: i) financial resources (MTEF budget & authorisation fees), ii) stakeholder representative board of directors, iii) cooperations agreements, iv) established infrastructure and equipment and v) established processes and job descriptions.
- External conditions: the current environment in which there's an aspiration to achieve impact. This includes the factors beyond control of the policy or legislation (economic, political, social, cultural, etc.) that will influence results and outcomes.
    - International policy changes – the proposal considers numerous international best practice amendments effected since the commencement of the Principal Act.
    - Economic environment – investments in nuclear power, albeit on a moderate increase globally, are subject to economic conditions that provide either a conducive or unfavourable environment for an increase in investment. Some authorisation holders must factor in compliance costs in their operations to cater for liability provisions in balancing commercial interests making trading conditions challenging.

- Social – the growing inequality in our society is a cause for concern and attention that can pose a challenge to the implementation of infrastructure and related plans. This needs adequate intervention to increase awareness and provide necessary information.
- Technology – advancements in technology brings with it innovative solutions that makes it easier and simpler to perform various tasks, however this needs to be mirrored in the regulator's capability to regulate the new technologies effectively.
- Environment – definition of nuclear and gas as green energy sources in the European Union Parliament, attention to South Africa and other countries have a detrimental effect on the future of the technology. Ability to effectively deal with the management of radioactive waste is key.
- Legal – case law involving nuclear technology and regulation of the sector is important to incorporate in any policy making exercise. Compliance to additional mandate areas with respect to this proposal needs to be monitored. New legislative instruments in support of the implementation of the proposal need to be developed.

- Assumptions: the facts, state of affairs and situations that are assumed and will be necessary considerations in achieving success
  - Public support following clear rationale and public awareness.
  - Availability of human, organisational, community and financial resources for current and future needs.
  - Availability of a functioning infrastructure to aid the implementation of the proposal.

2.9.1.3 Provide a comprehensive Logical Framework (LogFrame) aligned to the policy or legislative objectives and the Theory of Change. The LogFrame should contain the following components:

- Results (Impact, Outcomes and Output)
- Activities and Input
- Indicators (A measure designed to assess the performance of an intervention. It is a quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor)
- Baseline (the situation before the policy or legislation is implemented)
- Targets (a specified objective that indicates the number, timing and location of that which is to be realise

| The proposal aims to amend the National Nuclear Regulator Act, 1999, to substitute certain definitions and insert new definitions; to authorise the Regulator to perform additional regulatory functions; to provide for financial provision for costs associated with safe rehabilitation or decommissioning of nuclear facilities; to provide for administrative fines; and to provide for additional powers of inspectors. | | | | | |
|---|---|---|---|---|---|
| **What we aim to change?** | **What we wish to achieve?** | **Where are we?** | **What we produce or deliver?** | **What do we do?** | **What we use** |
| **Impact** | **Outcomes** | **Outputs Baseline** | **Outputs** | **Activities** | **Inputs** |
| Effective nuclear safety regulation of nuclear facilities, activities<br><br>Increased stakeholder trust towards operators, the NNR and government<br><br>Increased ability to secure new investment for authorisation holders | • Safe operations at nuclear facilities and activity sites<br>• Limitation of potential accidents and adequate preparations in case of an accident<br>• Sustainable operations from a financial and environmental perspective | • 209 authorisations have been issued to date<br>• 5 quarterly reports and one governance and financial report annually<br>• Zero monitoring and evaluation report (new output)<br>• 37 compliance assurance reports annually<br>• 9 safety evaluation reports annually<br>• 7 research reports and position papers annually<br>• 30 Government Gazette notices issued to date on subordinate legislation and other related notices. | Number of Authorisations (licenses, certificates, etc.) issued per year<br><br>Number of compliance assurance reports per year<br><br>Number of safety evaluation reports issued per year<br><br>Number of research reports and position papers issued per year<br><br>Number of monitoring and evaluation | Process applications for authorisation for nuclear facilities and activities including areas of additional mandate<br><br>Develop nuclear safety regulatory documentation<br><br>Establish a national dose register and store relevant occupational dose rate data<br><br>Conduct public awareness events | Financial resources (MTEF budget allocations & authorisation Fees<br><br>Stakeholder representative Board of Directors<br><br>Human resources<br><br>Cooperation agreements<br><br>Established infrastructure & equipment<br><br>Established processes and job descriptions |

| The proposal aims to amend the National Nuclear Regulator Act, 1999, to substitute certain definitions and insert new definitions; to authorise the Regulator to perform additional regulatory functions; to provide for financial provision for costs associated with safe rehabilitation or decommissioning of nuclear facilities; to provide for administrative fines; and to provide for additional powers of inspectors. | | | | | |
|---|---|---|---|---|---|
| **What we aim to change?** | **What we wish to achieve?** | **Where are we?** | **What we produce or deliver?** | **What do we do?** | **What we use** |
| **Impact** | **Outcomes** | **Outputs Baseline** | **Outputs** | **Activities** | **Inputs** |
| | | | reports issued per year<br><br>Number of governance and financial reports issued per year | | |

2.9.1.4 Provide an overview of the planned Evaluation, briefly describing the following:

- Timeframe: when it the evaluation be conducted
- Type: What type of evaluation is planned (formative, implementation or summative) – the selection of evaluation type is informed by the policy owners objective (what it is you want to know about your policy or legislation.

  The proposal is planned to undergo an implementation (formative) evaluation between 3-5 years of implementation. Further, an impact (summative) evaluation is planned between 7-10 years of implementation.

2.9.1.5 Provide a straightforward Communication Plan (Note: a common assumption is that the target group will be aware of, and understand how to comply with a policy or legislation come implementation. However, increases in the complexity and volume of new or amendment policy or legislation render this assumption false. Hence, the need for a communication plan to guide information and awareness campaigns to ensure that all stakeholders (including beneficiaries) are informed. See below table.

| COMMUNICATION PLAN | |
|---|---|
| **POLICY / LEGISLATION / PROGRAMME** | |
| **1. Name of policy / legislation / Strategy:** | National Nuclear Regulator Amendment Bill, 2022 |
| **2. Objective:** | To get the Bill passed through as an Act of Parliament.<br>To amend the National Nuclear Regulator Act, 1999,<br>To substitute certain definitions and insert new definitions;<br>To authorise the Regulator to perform additional regulatory functions;<br>To provide for financial provision for costs associated with safe rehabilitation or decommissioning of nuclear facilities;<br>To provide for administrative fines; and<br>to provide for additional powers of inspectors. |
| **3. Key elements:** | The National Nuclear Regulator Act, 1999, establishes the National Nuclear Regulator (NNR). On the back of founding legislation, the NNR has established processes, financial resources, workforce, and infrastructure. The Act has been implemented for the past 23 years and has had numerous challenges that manifest in identified developments in the nuclear regulatory environment which highlight some limitations and weaknesses in the current legislative framework that governs the NNR. |
| **COMMUNICATION PLANNING** | |
| **5. Communication objective(s):** | To communicate effectively across all phases of implementation of the NNR Amendment Act;<br>To share and solicit information with and from different stakeholders;<br>To build necessary relations across stakeholders to ensure proposal success. |
| **COMMUNICATION ISSUES AND KEY MESSAGES** | |
| **6. Potential communication issues and response / mitigation:** | Funding constraints – ensure appropriately planned activities and related resources<br>Lack of clarity between stakeholders resulting in lack of support – stakeholder inclusion from inception across different phases of implementation with clear roles and responsibilities agreed upfront |
| **7. What is the key message; and supporting facts?** | Nuclear facilities and activities can be deliver on many socio-economic benefits for the country, however it is important that they are undertaken under appropriate nuclear safety regulation as provided by properly mandate and capable National Nuclear Regulator<br>Public participation in processes applications for an authorisation from the NNR are safeguarded and protected in the National Nuclear Regulator Amendment Bill<br>It is important to ensure that nuclear facilities and activities are undertaken under sufficient provisions for possible nuclear accidents and the National Nuclear Regulator Amendment Bill address this need. |

| TARGET AUDIENCES, MESSENGERS AND STAKEHOLDERS | | | |
|---|---|---|---|
| **8. Target audiences:** | Authorisation holders, Other Government Department, South African National Defence Forces, South African Civil Aviation Authority, Local and Provincial Government, Business, Labour, Community, Academia, NGO's and NPO's.<br>Parliament through portfolio and select committees.<br>South Africa Public in general. | **9.Primary messengers:** | Minister of Mineral Resources and Energy.<br>Deputy Minister of Mineral Resources and Energy.<br>Director-General of Mineral Resources and Energy.<br>Deputy Director General of Mining, Minerals and Energy Policy Development.<br>CEO of National Nuclear Regulator |
| **10. Key stakeholders:** NNR, Authorisaiton Holders, Department of Forestry, Fisheries and the Environment, Department of Finance, NEDLAC, organised business and organised labour. | | | |
| INFORMATION PRODUCTS | | | |
| **11. Information products** | Publication, Banner, Website page, Presentation, etc. | | |
| CHANNELS | | | |
| **FREE CHANNELS** | | | |
| **12. Development / unmediated communication** | N/A | | |
| **13. Media liaison / PR** | Use of Departmental internal and external resources<br>Use of NNR resources | | |
| **14. Digital / social media** | Facebook and Twitter | | |
| **PAID FOR CHANNELS** | | | |
| **15. Television** | Live coverage of events and news /current affairs programmes. Talk shows. Interviews. Participation in panel discussions on nuclear safety and related security matters. | | |
| **16. Commercial print** | Application for authorisation, Notices for appointments, fact sheets and interviews. | | |
| **17. Radio: (SABC, commercial)** | All language stations | | |
| **18. Community media: (radio, print & TV)** | Live coverage of events and news /current affairs programmes. Talk shows. Interviews. Fact Sheets. Participation in panel discussions on nuclear safety and related security matters. | | |

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| **19. Outdoor** | Banners at relevant events |
| **20. Online / social media** | N/A |
| FINANCIAL IMPLICATIONS | |
| **21. Budget** | Priority will be given to unmediated, direct engagement with the target audience. The communication plan of the Department will be costed, and funds will be prioritised from the current budget. NNR run their own communication plan based on internal capacity and resource availability. |

2.10 Please identify areas where additional research would improve understanding of then costs, benefit and/or of the legislation.

- The Department has undertaken research to inform its estimated cost, benefit and/or legislation proposed in this report. Further research will be informed through different phases of processing the proposal.

## PART THREE: SUMMARY AND CONCLUSIONS

1. Briefly summarise the proposal in terms of (a) the problem being addressed and its main causes and (b) the measures proposed to resolve the problem.

   a) The implementation of the National Nuclear Regulator (NNR) Act, 1999 for over 23 years has met with various challenges. These challenges manifest in identified developments in the nuclear regulatory environment which highlight some limitations and weaknesses in the current legislative framework that governs the NNR. The consequence of the manifestation of these challenges within the current legislative environment is the limitation of NNR's mandate to perform its functions efficiently and effectively in protecting persons, property, and the public from nuclear damage across existing nuclear safety risks.

   In summary the challenges (causes of the problem) highlighted above are: i) A legislative gap in the nuclear safety regulation of occupational exposure of aircrew to cosmic radiation, with aeroplanes flying below 49 000 feet unregulated, ii) A legislative gap in the nuclear safety regulation of the Republic's National Defence Force facilities equipment, machinery, or scrap, including remediation or rehabilitation of land, upon a designation for release for civilian use, iii) Lack of an enabling provision to cater for the transfer of responsibility for authorised activities in instances of corporate restructuring such as mergers and acquisitions. This may lead to regulatory uncertainty and limited investment; iv) Emergence of revised international regulatory best practice (concepts and terminologies) from the IAEA that require alignment in the NNR Act before NNR enforcement to the extent of compliance with international standards v) lack of alternative penalty provision apart from criminal prosecution to encourage better compliance with the Act and therefore improve the protection of persons, property, and the environment.

   b) Measures proposed to resolve the challenges or causes of the problem identified above are to effect amendments to the National Nuclear Regulator Act, 1999, which is the proposal brought forward.

2. Identify the social groups that would benefit and those that would bear a cost, and describe how they would be affected. Add rows if required.

| Groups | How they would be affected |
|---|---|
| ***Beneficiaries*** | |
| 1. The Public | • Enhanced protection of the public, workers against effect of radiation<br>• Sufficient claiming period for damages by victims of nuclear accident or nuclear incident<br>• Clarity of roles of various stakeholders involved nuclear emergency preparedness and response<br>• Alignment to international best practices on nuclear safety matters |

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| 2. Department of Mineral Resources and Energy (DMRE) | Ensuring empowered regulator to carry out its full mandate, including the additional areas of regulation |
| 3. NNR | • Empowered nuclear safety regulator.<br>• Strengthened nuclear safety regulatory framework.<br>• Increased enforcement powers of inspectors. |
| 4. Civil society (e.g. Labour, NGO's and other organised groups) | • Reassurance to the civil society of enhanced/improved regulatory system.<br>• Transparency, accessibility, confidence building based on proactive and effective regulatory framework. |
| 5. South African National Defence Force and Navy | • An enhanced regulatory process with regards to the release of land and facilities intended for civilian use<br>• Strengthened relationship between Defence Force and NNR<br>• Ensuring the availability for adequate Cost associated with the financial security to cover compensation in the event of nuclear damage.<br>• |
| 6. South African Civil Aviation Authority | • Enhanced regulatory system for the protection of aircrew against the effects of cosmic radiation. |
| 7. Authorisation holders (e.g. Eskom, Necsa, mines, ) | • A more flexible licensing regime<br>• Access to the national dose register for the monitoring of occupational exposure |
| ***Cost bearers*** | |
| 1. Authorisation holders (such as nuclear facilities owners, mining and mineral reprocessing companies, scrap processors and other small users) | • The operator will be required to set money aside for the decontamination and decommissioning.<br>• Authorisation holders will be required to pay administrative fines for violation of conditions of Authorisation. |
| 2. NNR | • Ensure capacity to regulate Defence Force facilities and cosmic radiation |

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|---|---|
| | • Advisory work performed as a National Competent Authority during nuclear emergency.<br>• Formal training of inspectors.<br>• Establishment of the national dose register and training of authorisation holders |
| 3. Civil aviation industry | • Cost associated with the regulation of cosmic radiation |
| 4. Defence Force and SA Navy | • Cost associated with application for authorisation of equipment / land released to the public domain.<br>• Cost associated with the financial security to cover compensation in the event of nuclear damage. |

3. What are the main risks from the proposal in terms of (a) undesired costs, (b) opposition by specified social groups, and (b) inadequate coordination between state agencies?

- The main risk is when the regulator has a limited power to exercise its regulatory responsibilities. Lack of empowering provisions will hinder the regulator to provide its nuclear safety oversight in all areas that have a potential to release radiation.
- Moreover, the other risk is associated with the possible disagreements and appeals by authorisation holders against the administrative fines. The operator may see this as an additional cost. The current Act has limited penalties to criminal sanctions; however, the inclusion of the administrative penalties will further introduce certain costs for non-compliance, but the intent is to strengthen the enforcement regime of the Regulator.

4. Summarise the cost to government in terms of (a) budgetary outlays and (b) institutional capacity.

- Medium Term Expenditure Framework budget allocations for NNR up to Financial Year 2024/25 makes a total allocation of R142, 775, 000.00, for which the FY2022/23 made an allocation of R46, 769, 000.00. Additional mandate areas are expected to be funded through annual adjustments of authorisation fees that have on average been aligned to inflation.
- Internal institutional capacity with the Department is established and not expected to significantly change because of this proposal. Minor adjustment within the NNR existing institutional capacity can be expected to cater for the national dose register. Minimal change is also expected at the South African Civil Aviation Authority with one radiation specialist expected to be appointed because of the proposal to support the regulation of occupational exposure to cosmic radiation.

5. Given the assessment of the costs, benefits and risks in the proposal, why should it be adopted?

- Noting the costs, benefits and risks that come with the proposal as detailed above, it is important to emphasise that the constitutional mandate to ensure proper protection of persons, property and the environment against nuclear damage is well justified captured as amendments to the National Nuclear Regulator Act,

1999 as the only legally established entity to carry this mandate in South Africa as a competent authority.

6. Please provide two other options for resolving the problems identified if this proposal were not adopted.

| | |
|---|---|
| **Option 1.** | Use existing prescripts as per the NNR Act. This will however not solve the identified problems because there is no basis in law to impose changes in how to regulate nuclear safety. |
| **Option 2.** | Do nothing. State of challenges persists at the expense of the protection of persons, property and the environment. |

7. What measures are proposed to reduce the costs, maximise the benefits, and mitigate the risks associated with the legislation?

- The required measure is to strengthen the nuclear safety regulatory framework by empowering the NNR in areas of potential nuclear safety risk that could lead to nuclear damage. This will be beneficial to the public because of improved safety. The costs to implement the proposals will be minimal as compared to the cost when nuclear activities are not effectively and efficiently regulated with consequences of nuclear accidents carrying a high cost to recover from.

8. Is the proposal (mark one; answer all questions)

| | **Yes** | **No** |
|---|---|---|
| a. Constitutional? | X | |
| b. Necessary to achieve the priorities of the state? | X | |
| c. As cost-effective as possible? | X | |
| d. Agreed and supported by the affected departments? | X | |

9. What is the impact of the Proposal to the following National Priorities?

| **National Priority** | **Impact** |
|---|---|
| • Building a capable, ethical and developmental state | • The regulator maintains a highly skilled and transformed workforce of about 175.<br>• The over 200 authorisations issued by the regulator are a tool by which economic transformation and job creation has been unlocked and sustained in the country. These authorisations have helped to unlock revenue generating enterprises in |

| National Priority | Impact |
|---|---|
| | mining and mineral processing, scrap processing, energy, research and development amongst others.<br>• The proposals will empower the regulator to appoint personnel responsible for technical services system to support the regulator, e.g. developing and maintaining the national dose register system.<br>• The SACAA will appoint a radiation specialist to assist with the regulation of occupational exposure of aircrew to cosmic radiation.<br>• The proposals intend to build a robust and independent regulator to ensure that persons, property and the environment are protected against nuclear damage. |
| • Economic transformation and job creation | Economic transformation and job creation will be sustained through existing facilities and activity sites under regulation of the NNR, with some undergoing expansion. Further, new applications for nuclear facilities and activities will present an opportunity to positively impact on economic transformation and job creation with infrastructure such as the 2500 MW nuclear build programme, Multipurpose Research Reactor and the Centralised Interim Storage facility all earmarked for implementation in the short to medium term. |

| National Priority | Impact |
|---|---|
| | |
| • Education, skills and health | Current and earmarked infrastructure operations that are regulated by the NNR require a workforce that has multiple levels of education and skills. The requirement of the workforce applies to DMRE, NNR and authorisation holders. Noting the long-term nature of the operations (some already operating for over 50 years), the need to replace workforce for existing operations is clear. New infrastructure will place an added demand on workforce that is appropriately educated and has requisite skills.<br><br>Impact on health because of implementing this proposal will have a positive effect in that current operations that are authorised by the NNR allow for treatment and diagnostic of cancer, with advanced preparations to establish replacement infrastructure which will safeguard this life-saving health service into the future. |
| • Consolidating the social wage through reliable and quality basic services | The proposals will not have a direct impact to this priority apart from its authorisations used to operate facilities that generate clean electricity and cancer treatment drugs. Both are basic health and electricity services. |
| • Spatial integration, human settlements and local government | |

| National Priority | Impact |
|---|---|
| • Social cohesion and safe communities | Increased awareness for Historically Disadvantages Individuals particularly those residing in the vicinity of nuclear facilities. More people would be able to participate in decision making process in nuclear safety matters. Authorisations issued by NNR are necessary tools to operate facilities and activities to generate services/products such as electricity, health, and mineral production, in a manner than protects persons, property and the environment. |
| • A better Africa and world. | Improved nuclear safety and related security of nuclear facilities and activities in line with international best practices will contribute towards a better Africa and the world. |

***For the purpose of building a SEIAS body of knowledge please complete the following:***

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|---|---|
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