Netherlands Commission for
Environmental Assessment

Review of the Strategic Environmental and Social Assessment for the Nuclear Power Programme

KENYA

5 November 2024
Ref: 7393

Advisory Report by the NCEA

Title	**Review of the Strategic Environmental and Social Assessment for the Nuclear Power Programme**
To	National Environment Management Authority – NEMA
Attn	Mr R. Orina, Deputy Director
Request by	Mr R. Orina, Deputy Director
Date	5 November 2024
From	The Netherlands Commission for Environmental Assessment
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Date: 5 November 2024
Subject: 7393 Review of the SEA for the Nuclear Power Programme - Kenya

Dear Mr Orina,

I would like to express my sincere appreciation for enabling our Commission to review the Strategic Environmental and Social Assessment report supporting the Nuclear Power Programme. By inviting our Commission, NEMA shows that they want to check the quality of the SESA process and report against international good practice SESA standards and in a transparent manner.

In addition, I would like to thank you for your active support in the preparations of our visit to Kenya as well as accompanying our team during our site visit to the coast, which we feel contributed to acquiring a deeper understanding of possible issues that require serious attention and the importance of coordination and optimal understanding between stakeholders, both governmental and non-governmental. We highly appreciated the frank discussions with NEMA and NuPEA during our meetings in Kenya.

It is evident that the introduction of nuclear power is a complex and time-consuming process that is required meeting good practice standards of the International Atomic Energy Agency Energy. Our advice mentions several issues that are still to be further addressed.
A point I would like to underline here, concerns the many questions regarding the proposed Kenyan Nuclear Power Programme raised amongst stakeholders, that have not yet been answered sufficiently whilst undertaking the SESA.
As we discussed, SESA is an approach and a tool to meaningfully and effectively engage a full range of relevant stakeholders and support well-informed decision-making. If adequately applied, it can contribute to public acceptance of complex policies. In this case it concerns nuclear energy potentially becoming part of the future fuel mix in Kenya.

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During our review and the meetings with stakeholders, we concluded that the potential of SESA so far is not fully being utilised. One of the consequences we have noticed, is not only a lack of information and trust among crucial stakeholders, but also a gap in the SESA as to understanding some essential aspects around a possible nuclear facility in environmentally and socioeconomically important areas along the Kenyan West coast.
Therefore, we not only recommend to revise the SESA report, but also to invest considerably in stakeholder engagement during the revision of the Strategic Assessment as well as in all subsequent steps of elaborating the Nuclear Power Programme to regain public trust. The NCEA is ready to review the next version of the SESA report.

Yours sincerely,

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Ms S.L.J.M. (Simone) Filippini
Chair
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1. Introduction

1.1 The Nuclear Power Programme and SESA

Brief description of the programme

The Republic of Kenya is developing a Nuclear Power Programme. Several legislative and institutional arrangements have been made: the Nuclear Regulatory Act, adopted in 2019; the Kenya Nuclear Regulatory Authority, established in 2020; and the Nuclear Power and Energy Agency (NuPEA) established in 2020. The Nuclear Power Programme is being developed by NuPEA and comprises:

- the nuclear power plant;
- the nuclear research reactor (including opportunities for medical purposes);
- uranium exploration plan.

In the development of this programme, NuPEA follows the Milestone approach of the International Atomic Energy Agency (IAEA) consisting of three phases:

- Phase 1: Considerations before a decision to launch a nuclear power programme is taken;
- Phase 2: Preparatory work for the contracting and construction of a nuclear power plant after a policy decision has been taken;
- Phase 3: Activities to implement the first nuclear power plant.

The completion of each phase is marked by a specific milestone at which the progress of the development effort can be assessed. According to the IAEA Strategic Environmental Assessment for Nuclear Power Programmes: Guidelines (2018), hereafter 'IAEA Guidelines (2018)', a Strategic Environmental Assessment (SEA) should be carried out in phase 1 to support the development of the Nuclear Power Programme. NuPEA adopted the IAEA Guidelines (2018) to guide the development of the SEA.

Strategic Environmental and Social Assessment (SESA)[1] in Kenya

SESA is a formal and systematic process to analyse and address the environmental effects of policies, plans, programmes and other strategic initiatives. Kenya's Environmental Management and Coordination Act 2015 (EMCA) Schedule II requires a SESA to be conducted for the proposed development of a nuclear programme. NEMA has established SEA guidelines (2012) providing guidance on the content and process of SESA.

The IAEA established SESA guidelines in 2018. As mentioned above, according to these guidelines a SESA needs to be executed in phase 1 of the Milestone approach and should be used to inform the development of a Nuclear Power Programme.

The important steps in the SESA process for Kenya's nuclear power programme are the following:

- Screening decision by NEMA in December 2015;
- Scoping report approved by NEMA in March 2019;

[1] The Kenya regulations refers to SEA but NuPEA uses the term SESA. SESA emphasises that social issues are considered as well. Hereafter, the term SESA will be used in this advisory report.

- Draft SESA prepared by SGS and submitted to NEMA in July 2020; Regional validation workshops by NuPEA and NEMA in 2021 and 2022; 2nd version of draft SESA submitted to NEMA in January 2023; National validation workshop March 2023; and 3rd version of draft SESA submitted to NEMA in June 2023.

The SESA is reviewed by NEMA. If NEMA deems it necessary, EMCA Section 61 (2015) provides the legal basis for an external review of the SESA. NEMA requested the Netherlands Commission for Environmental Assessment (NCEA) by letter dated 29 May 2024 to review the SESA for Kenya's nuclear power programme (see Annex 1 for this letter). The NCEA responded positively to this request.

1.2 Role of the NCEA and approach applied

Role of the NCEA

The Netherlands Commission for Environmental Assessment (the NCEA) – established by Dutch law – is an independent not-for-profit knowledge institute in the field of environmental and social impacts. This knowledge is used to advise and support Dutch and foreign governments – at their request – in integrating environmental, social and climate considerations in decision-making. The NCEA is neutral and has no opinion on the nuclear power programme as such.

The NCEA responded positively to NEMA's request for review of the SESA, stipulating the following conditions: free access to all information, access to stakeholders, access to potential sites, advisory report is non-negotiable and will be made publicly available. NEMA agreed with those conditions. According to its working method, the NCEA composed a tailor-made working group of independent experts and started the review of the draft SESA Report. The working group visited Kenya 25-30 August (see Annex 2 for the programme of the visit). During the site visit, the NCEA working group organised several meetings with stakeholders, see Annex 3 for a list of consulted stakeholders.

Review framework

The NCEA has reviewed the draft final SESA Report (version June 2024), including Annexes. To review this SESA Report the NCEA used the following frameworks as agreed upon with NEMA:

- IAEA Strategic Environmental Assessment for Nuclear Power Programmes: Guidelines (2018). These guidelines provide a review framework that has been applied by the NCEA. See Annex 4 for this review framework;
- IAEA Site survey and Site selection for nuclear installations – specific safety guide (2015); Hereafter 'IAEA Safety Guide (2015)';
- NEMA SEA Guidelines (2012);
- Scoping report approved by NEMA in March 2019;
- Long-term practice experience in assessing the quality of SESA Reports by applying the following review criteria: completeness of the information; quality of the information; and relevance of the information for decision-making.

In addition, the following documents have been consulted to obtain better insight into the programme:

- IAEA Managing Environmental Impact Assessment for Construction and Operation in New Nuclear Power Programmes, IAEA Nuclear Energy Series No. NG-T-3.11 (2014);
- Ministry of Energy and Petroleum (2023): Kenya Energy Transition & Investment Plan 2023-2050;
- Ministry of Energy and Petroleum (2021) Kenya Least Cost Power Development plan 2021-2030;
- Ministry of Energy and Petroleum (2018) National Energy Policy;
- NuPEA Strategic Plan 2020/21-2024/25 (2020);
- NuPEA Strategic Plan 2023-2027 (2023);
- Keny4a National Nuclear Fuel Cycle Policy and Strategy (2017).

Preliminary, main findings of the NCEA were presented to NEMA and NuPEA on the last day of the visit to Kenya. A draft of the NCEA advisory report was submitted to NEMA 11 October 2024. NEMA responded 22 October 2024 to the draft advisory report that they have no comments. The final Advisory Report was made available on NCEA's website www.eia.nl on Wednesday 6 November 2024.

Because the advisory report is publicly available, the NCEA tries to make it accessible for a wider group of stakeholders. Therefore, providing a more extensive explanation of their review findings in Chapter 3.

Reading guide

This Advisory Report is structured as follows: Chapter 2 presents the main findings of the assessment of the quality of the draft SESA Report although it should not be considered as a summary. Chapter 3 presents all findings of the review as well as recommendations.

2. Main review findings

The NCEA reviewed the draft final SESA Report (June 2024) for Kenya's Nuclear Power Programme (hereafter the 'SESA Report'). The NCEA recognises that the SESA Report constitutes a significant volume of work by NuPEA and the team of consultants led by SGS, considering that Kenya is an emerging nuclear energy country and in a phase of capacity building for nuclear knowledge and skills. The SESA Report has been made in a period during which the nuclear power legislation in Kenya has been developed and the NCEA appreciates that the legal framework is especially well described in Chapter 4. During our site visit, it also became clear that a significant amount of work has been done, that is relevant, and which should have been included in the SESA Report. However, for unknown reasons this information is not part of the SESA, for instance work around site selection.

The NCEA concludes that the SESA Report does not meet IAEA standards of SESA good practice and therefore does not constitute a basis for well-informed decision-making. The SESA Report needs key revisions to meet IAEA standards of good practice.

The NCEA noted the following main shortcomings, which are described more extensively in Chapter 3, together with recommendations for remediation:

- Communication and stakeholder engagement: Kenya is developing a Nuclear Power Programme. Nuclear power generation is complex and often a source of debate. The SESA therefore plays a crucial role by informing the public to build trust and thereby contributing to informed, public acceptance of the project. This requires a careful, transparent and accountable process. Stakeholder mapping and engagement are critical elements of a SESA process but, in this case, they do not meet the standards of meaningful and effective stakeholder engagement and public participation.
- Justification of nuclear energy as part of the future fuel mix: The SESA Report briefly describes the need for nuclear energy as part of the future fuel mix. The arguments used to justify this need are incomplete, discussion of benefits and risks is not balanced, and benefits are over-emphasised.
- Key components and impact areas: The Nuclear Power Programme summarised in the SESA Report indicates that the following key components are subject to SESA: a nuclear power plant, a nuclear research reactor and a uranium exploration plan. The NCEA notes that the SESA Report is predominantly providing information on the nuclear power plant and provides only scant information on the research reactor and the uranium exploration plan.

  According to the IAEA Guidelines Section 3.2 (2018) the following seven nuclear power impact areas, if relevant to the specific project, need to be considered in the SESA:

  1. Main siting and technological considerations
  2. Power plant construction, operation and decommissioning
  3. Nuclear fuel cycle
  4. Spent fuel management strategy/radioactive waste storage and disposal
  5. Physical protection and security
  6. Emergency preparedness and response
  7. Wider physical infrastructure requirements

Only impact area 1 is fully covered in the SESA. The other impact areas are only partially considered, one more than the other. The information that is presented is incomplete, not coherent and the assessment is not balanced.

- Alternative options and mitigating measures: According to IAEA Guidelines (2018) Sections 4.4.2 and 4.4.3, in principle, options and mitigating measures need to be considered in SESA for each of the above-listed impact areas. These options should be closely aligned with, but not limited to, what is considered in the parallel development of the nuclear power programme. In the SESA Report none of the possible options and only some mitigating measures are considered, whereas the SESA Report states that decisions on options concerning the nuclear fuel cycle and radioactive waste have already been made.
- Main siting and technological considerations: The SESA states that the IAEA (2015) Guidelines on site selection are used as the basis for site selection. These guidelines, however, are not systematically applied. Baseline information used for site selection is inadequate and not up to date which is likely to have impacted negatively on the integrity of the selection and priority setting of the sites suitable to construct a nuclear power plant.
- Power plant construction, operation and decommissioning: The SESA should describe relevant options and potential impacts of the development of the power plant. The magnitude of a nuclear power plant and adjacent infrastructural works is not well described nor visualised. The SESA does not provide information on any of the environmental (including climate change and landscape), social and cumulative impacts in the pre-construction, construction, operational or decommissioning phases of the power plant. A preliminary plan or strategy of the decommissioning phase is absent.
- Nuclear fuel cycle: The nuclear fuel cycle consists of several steps (e.g. mining, conversion, enrichment, fuel fabrication, spent fuel management and disposal). The SESA should have described and assessed relevant options for each of the steps for the Kenyan situation.
- Wider physical infrastructure requirements: The SESA describes only grid-related issues, and these are described inadequately. Information on other potential infrastructure needs is entirely lacking.

3. Review findings

This chapter consists of fourteen sections in which the detailed findings of the review of the draft SESA Report are presented and recommendations are tabled with a view to improving the quality of the SESA process and reporting.

3.1 Layout and structure of the report

The SESA Report is not well structured or coherent which affects its readability. Moreover, annexes are difficult to navigate and some links to other documents are not directly accessible.

One of the factors causing the incoherence of the SESA Report is in our view the absence of a clear distinction between the geographical levels of the assessment. The following distinction would have contributed to a better understanding of the assessment results:

- National to regional level:
  - Site selection step 1: Regional analysis; and step 2: Screening out, informing candidate sites;
- Regional to local level:
  - Site selection step 3: Ranking of candidate sites;
  - Decisions based on options for each of the nuclear power impact areas, for the preferred sites.

Each level requires a tailor-made assessment consisting of the following steps:

1. description of the baseline environment;
2. description and assessment of options and impacts;
3. description and assessment of the mitigating measures; and
4. stakeholder engagement.

To improve the accessibility of the SESA Report one can also make a film or video to inform the potential project-affected people.

Recommendations

- The SESA Report would benefit from the application of the template Table of Contents in the IAEA Guidelines (2018) to structure it. Provision of a non-technical summary (including visualisation of the proposed development) in English and Swahili is essential.
- Make a clear distinction in reporting between the assessment steps at (i) national to regional level and (ii) regional to local level regarding: baseline, options, impacts and mitigating measures.

3.2 Description of the Nuclear Power Programme

According to IAEA a Nuclear Power Programme is a major undertaking requiring careful planning, preparation and investment in time and human resources. Kenya is therefore applying the IAEA Milestone approach consisting of three phases, briefly described in Chapter 1.

The SESA Report states that Kenya's Nuclear Power Programme is presently at the tail end of Phase 1: Considerations before a decision to launch a nuclear power programme is taken. It is in Phase 1 that a SESA should be carried out according to IAEA (2018). The NCEA has taken note that the government of Kenya has made statements to the effect that the Nuclear Power Programme is in Phase 2[2].

IAEA Guidelines (2018) recommend that the SESA be conducted in parallel with the process of designing a nuclear power programme and needs to engage with the development of this programme at regular intervals, in line with the approach presented in Figure 9, page 28 of IAEA Guidelines (2018). The NCEA noted that this approach has not been applied. Consequently, decisions on options concerning, for example, nuclear fuel cycle and radioactive waste management, have already been made according to NuPEAs Strategic Plan 2020/2021– 2024/25 (2020) but have not been assessed in the SESA Report. See section 3.4 for additional observations and recommendation regarding options.

3.2.1 Key components

Chapter 2 of the SESA Report describes the national nuclear power programme, the following components of which are subject to the SESA: Nuclear power plant, nuclear research reactor and uranium exploration plan.

Nuclear power plant

The SESA provides information on the nuclear power plant, predominantly. This means the review findings and recommendation in the sections 3.5 to 3.14 of this advisory report focus on the nuclear power plant almost exclusively while there is limited information on the nuclear research reactor and Uranium exploration plan further explained below.

Nuclear research reactor

Information on the nuclear research reactor is almost absent. According to the SESA Report a research reactor of max. 5 MW is planned to be developed at Konza City. Although this is a small reactor, it is still a nuclear installation, with attendant issues relating to safety, security and safeguards. The site selection process is not considered in the SESA Report.

Uranium exploration plan

The SESA Report lists four stages of uranium and thorium exploration. The findings of stage 1 identification of potential resource areas are presented briefly. The NCEA understands that it will take time to carry out the next stages which may possibly result in a uranium exploration plan.

[2] Kenya's statement at the 68th regular session of the general conference of the International Atomic Energy Agency 16th to 20th September, 2024, Vienna, Austria.

Recommendations

- Research reactor: The SESA should also provide information on the research reactor for each of the seven impact areas, as far as relevant. Site selection need to be justified. All information on possible sites that have been identified, assessed and compared need to be presented and justified in the SESA. The country wide survey and exclusion mapping assessment, as included in the current SESA, is not required.
- Uranium exploration plan: The NCEA recommends carrying out a separate SESA supporting the development of a uranium (and thorium) exploration plan if it is decided to continue with the next stage of exploration.

3.2.2 Impact areas

According to the IAEA SEA Guidelines (2018) the following seven nuclear power impact areas need to be considered in the SESA, as far as relevant, in the Nuclear Power Programme:

1. Main siting and technological considerations;
2. Power plant construction, operation and decommissioning;
3. Nuclear fuel cycle;
4. Spent fuel management strategy/radioactive waste storage and disposal;
5. Physical protection and security;
6. Emergency preparedness and response;
7. Wider physical infrastructure requirements.

The NCEA noted that only impact area 1 is fully covered in the SESA. The other impact areas are only partially considered. The reasons why some of the impact areas are not or partially considered need to be justified. In section 3.5 to 3.11 the NCEA presents the review findings and recommendations for each of the seven impact areas.

Recommendation

Justify why certain impact areas are discussed in less detail in the SESA. See section 3.5 to 3.11 for recommendations regarding the content of these impact areas.

3.2.3 SESA objectives

Section 1.6 of the SESA Report describes the main and other objectives. In the view of the NCEA some important objectives are missing, which would need to be included in the next version of the SESA Report.

Recommendations

Include the following objectives:

- Justification of nuclear power as part of the future energy mix;
- Selection or justification of preferred options for each of the relevant impact areas;
- Site selection of a nuclear power plant and research reactor.

3.3 Justification of nuclear energy as part of the future fuel mix

Introduction of nuclear power in a country is a large and costly investment. Therefore, it is important to justify in a transparent manner why the benefits of introducing nuclear power outweigh the risks and costs. Moreover, in the view of the NCEA a science-based justification

will contribute to public acceptance of nuclear energy. The IAEA Guidelines (2018) also recommend justification of nuclear power as part of the future national fuel mix.

In Section 1.3 of the SESA Report, information is provided to justify the development of nuclear power as part of the future fuel mix. The following factors are used to justify nuclear power:

- Energy demand in Kenya and neighbouring countries;
- Present energy sources (biomass, petroleum products, hydropower) and the need for clean energy;
- Stable source of energy;
- Cost/KWh;
- Operational reliability.

For each of these factors the justification is weak for the following reasons: information provided is not well structured and incomplete; the time horizon used of 2030 is too limited, demand and production scenarios are not presented; advantages and disadvantages are not systematically described; and the costs and benefits are unclear.

Recommendations

Justify in the SESA Report the need for nuclear power as part of the future energy mix. Use can be made of existing Kenyan policies, programmes (see Chapter 7.2 in the SESA Report) and studies such as those published by the Ministry of Power & Petroleum (2021, 2022) as well as the publications IAEA (2009) and IRENA (2020)[3].

At least the following factors and information need to be taken into consideration in the next version of the SESA:

- Present a summary of the present policies and plans guiding the future power system at national and regional level.
- Describe the present energy system and trends since 2000.
- This assessment needs to use a long-term time horizon than can be divided into three phases:
  - 25 years, until 2050 for a detailed assessment;
  - 50 years, until 2075 for a more generic assessment;
  - 75 years, until the year 2100 for a projection.
- International context; the plans for connecting energy systems with neighbouring countries and import and/or export of energy need to be described, projected and used as input in the development of energy production scenarios.
- Demand forecasting: develop energy demand scenarios by taking into consideration population growth, economic growth and changes in behaviour of energy use and source.
- Develop energy production scenarios: an analysis of potential future use of all (non-) renewable energy sources, taking into consideration climate change scenarios. In

[3] Ministry of Energy and Petroleum (2021): Least Cost Development Plan 2022-2041; Ministry of Energy & Petroleum (2022): Kenya energy transition and investment plan 2023 – 2050. IAEA (2009): Tools and Methodologies for Energy System Planning and Nuclear Energy System Assessments. IRENA (2020) Energy planning and modelling support in Africa.

particular, the large potential of geo-thermal energy needs to be analysed. At least the following three main scenarios need to be analysed and compared[4]:

- A. Vision growth scenario
  - With nuclear power
  - Without nuclear power
- B. Low growth scenario
  - With nuclear power
  - Without nuclear power
- C. Reference growth scenario
  - With nuclear power
  - Without nuclear power

- This assessment takes a long-term time horizon and, consequently, uncertainties of projections increase towards the future. Therefore, it is necessary to assess these uncertainties and risks, especially related to these scenarios from the following perspectives: social/livelihoods, environmental/biodiversity, financial, economic and (geo-)political.
- The NCEA suggests executing a social cost-benefit analysis of these three scenarios.

3.4 Options, impacts and mitigating measures

According to the IAEA Guidelines Section 4.4.2 (2018), the SESA needs to describe and consider various options and mitigation measures for each of the seven impact areas. See Table 1 below for examples:

Table 1: Examples of potential options and mitigation

Nuclear power impact	Options Mitigation measures	Nuclear power impact
Main siting and technological considerations	• Different siting criteria • Different reactor types	• Considering a different site or different types of site; • Changing construction and design at the same site; • Considering a different reactor type.
Power plant construction, operation and decommissioning	• Different construction materials; • Different designs (c.g. wet or dry cooling tower, hybrid cooling tower without plume); • Different transport options (modes and routes): • Different decommissioning options (c.g. future use of site for similar or other purposes).	• Considering less environmentally harmful construction materials; • Considering more environmentally sustainable transport options and routes; • Considering more environmentally sustainable decommissioning options.
Nuclear fuel cycle	• Import fuel: • Extract uranium from domestic mines; • Fuel leasing; • Reprocess uranium.	• Considering more environmentally sustainable fuel options and sources; • Choosing most knowledgeable companies.
Spent fuel management strategy or radioactive waste storage and disposal	• Store both low and high level wastes together in a deep geological repository; • Store low level waste in a landfill site;	• Considering decay storage to reduce radioactivity in low level waste;

[4] The Least Cost Power Development Plan 2021-2030 by the Ministry of Power and Petroleum (2021), also refers to these three scenarios.

	• Fuel leasing: • Agreement with foreign country to combine storage efforts.	• Considering measures to reduce the amount of waste to be stored.
Physical protection and security	• Consider site options based on their implications for physical protection and security: • Consider different options of physical protection and security measures.	• Enabling design which can be better physically protected and secured.
Emergency preparedness and response	• Consider sites and operations (including transport) at which emergency preparedness and response is, comparatively, more secure.	• Reducing risk of accidents by learning from past experiences and adjusting the design accordingly; • Preparing emergency and response plans; • Undertaking a thorough risk assessment.
Wider physical infrastructure requirements	• Consider the physical infrastructure requirements for different sites.	• Looking at environmentally sustainable physical infrastructure options.

Source: IAEA SEA Guidelines Table 4 (2018)

Options and impacts

The SESA Report provides information on options in chapters 1, 3 and 7. However, besides options for site selection of a nuclear power plant, none of the possible options listed in Table 1 above or the impacts are described and assessed in the SESA Report.

Chapter 1.10 point 16 in the SESA Report states that the National Nuclear Programme has already evaluated or assessed the following options:

- Nuclear energy system options.
- Large nuclear power plant and small modular reactors.
- Suitable fuel cycle options in view of the Nuclear Fuel Cycle Policy and Strategy that has already been developed.
- Suitable radioactive waste management options. A National Policy and Strategy for Radioactive Waste Management has been developed[5].

However, these options – if studied – have not been described or assessed in the SESA Report and that constitutes a shortcoming.

Chapter 3 summarises the three-step approach to select the location of a nuclear power plant. This process results in ranking candidate sites and selection of two preferred sites. The NCEA review findings and recommendations on site selection are presented in section 3.5 of this advisory report.

The title of chapter 7 is: Analysis of alternative options. Chapter 7 describes other ongoing energy and electricity development programmes, but does not touch upon any of the seven impact areas and options as described by the IAEA Guidelines and shown in Table 1 above. The programmes described in chapter 7 could be used to justify nuclear power as part of the future fuel mix. See section 3.3 of this advisory report.

[5] The evaluation of suitable radioactive waste management options is mentioned in the SESA Report and referred to in the NuPEA Strategic Plan 2020/21–2024/25 (June, 2020).

Mitigating measures

According to the IAEA Guidelines Section 4.4.3 (2018), mitigating measures are intended to improve the protection of environmental and social assets. Table 1 above provides a list of mitigating measures for each of the seven impact areas.

The title of chapter 8 of the SESA Report is: Proposed mitigation measures. This chapter does not describe or assess the possible mitigating measures as listed in the above Table 1. Instead, the chapter provides an extensive description of all policies that are in preparation, or still need to be developed as part of a general environmental and social management framework. The described measures tend to abrogate responsibility to policies, rather than setting out necessary practical steps.

Recommendations

- Describe and make a comparative impact assessment of all relevant options and mitigating measures considered, taking into consideration environmental, social and economic aspects/impacts as well as technological aspects. If options and mitigating measures have already been selected, then these choices should be justified in the SESA.
- Use Table 1 above (IAEA Table 4) to provide an overview of all relevant options and mitigating measures. The examples listed in Table 1 should be considered but used with care. Some can be discarded, like different construction materials and store both low and high level wastes together in a deep geological repository (a new nuclear power plant will always store its waste on-site for the first few years. A geological repository only comes decades later, when enough waste has been accrued to make it economical). Storage might come later but should be addressed as it is a primary concern of stakeholders.

3.5 Site selection of nuclear power plant

Methodology

Site selection of a nuclear power plant is a sensitive process that requires a transparent and accountable approach. The purpose of SESA is to facilitate this public process contributing to trust and public acceptance of nuclear power. Therefore, it is vitally important that the process of site selection is well described and justified.

The IAEA provides clear guidance for site selection[6]. The SESA Report refers to this guidance and states that it is used as a basis for site selection. However, this guidance is not systematically applied. Chapter 3 describes the three steps taken in the process of site selection:

- Step 1: Regional analysis resulting in 29 sites;
- Step 2: Screening of 29 sites resulting in 13 candidate sites;
- Step 3: Ranking of 13 candidate sites resulting in 2 preferred sites.

However, the implementation of these three steps – including description of the baseline situation and the assessment of impacts – is incomplete, not traceable and justification is weak. Only seven maps are presented, none of which relate to the Geographic Information

[6] IAEA (2015) Site survey and site selection for nuclear installations specific Safety Guide N. SSG-35.

System (GIS) process described in the SESA; nor is any process of Overlay Mapping applied, as described in IAEA Guidelines 6.9. The presentation and justification of the sensitivity analysis is incomplete, and the steps made in this analysis are not traceable.

In NCEA meetings with NuPEA, it became clear that much more information concerning site selection is available. For unknown reasons, that information is not presented in the SESA Report in a systematic and accessible manner.

As stated in section 3.2 of this advisory report the level of detail of the assessment should distinguish between: on the one hand steps 1 and 2 – Regional analysis and Screening; and on the other hand step 3 – Ranking of candidate sites. In step 3 it is necessary to assess the baseline information and impacts in much more detail because one needs to compare sites. In the SESA Report this distinction in level of detail is not made. The NCEA notices that the description of baseline information and the assessment of impacts for step 1 and 2, as well as for step 3, is insufficient. Essential shortcomings, especially with respect to assessment of step 3, are listed below following the impact themes distinguished by IAEA Guidelines page 23 (2018):

<u>Economy, society, public health, wellbeing and safety, land, landscape & cultural heritage</u>

- The lack of baseline data means that it is not possible to measure potential impacts of a nuclear power plant project on the people who will be affected by it.
- Risks that relate to the project specifically and which can inform either viability of the project in a specific location or how risks might be mitigated are not assessed.
- There is no examination or reference to the existence – or not – of any indigenous population, thus there is no consideration for the possible requirement for Free Prior and Informed Consent, an established standard of best practice in development projects7.
- No considerations as to whether large or small scale economic activities (e.g. tourism) and livelihoods would be influenced (positively or negatively) by a nuclear power plant and associated infrastructure.
- Existing regional and county development plans are not considered, for example in Kwale County: planned construction of additional berths for the port of Mombasa; maritime transport scheme for Diani/Mombasa; shifting Bamburi cement quarries and cement to south coast.
- Cultural heritage in terms of archaeological as well as sacred sites, other than a passing reference to the existence of one archaeological site, is not considered, despite the Scoping Report flagging the importance of heritage impact assessment.
- Reference is made in the Scoping Report (7.13) to the requirement for land acquisition for a nuclear power plant and its buffer zone, for the research reactor and other wider physical infrastructure, with broad estimates of the plant built up area and reference to

[7] 2007, the UN General Assembly adopted the United Nations Declaration on the Rights of Indigenous Peoples, recognising their rights and making specific mention of Free, Prior and Informed Consent (FPIC) as a pre-requisite for any activity that affects their ancestral lands, territories and natural resources. In recent years, development experts have recognised that FPIC is not only important for indigenous peoples but it is also good practice to undertake with local communities, as involving them in the decision making of any proposed development activity increases their sense of ownership and engagement and, moreover, helps guarantee their right to development as a basic human rights principle. Ref: https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1411095/

impacts on differing land use. However, the SESA reference at Section 8.3b to a Resettlement Policy Framework (RPF) does not expand with information specific to candidate sites which would inform decision-making around site selection. Furthermore, the NCEA understood during the site visit that no land use or land tenure maps have been prepared, without which it is not possible to ascertain the possible scale of population or economic displacement. This information is an essential component of site selection, and an outline of the RPF should be included in the SESA.

Climate change, ecosystems and natural hazards

- Information on the effects of climate change (for different climate change scenarios) on the nuclear power project during their lifetime and related infrastructure is not considered.
- Protected and designated areas are not fully/correctly delineated or considered at ecologically appropriate scales (e.g., use of buffer zones)[8].
- Transboundary habitats/ecosystems or migratory/movement corridors of species are not mentioned, despite the presence of a transboundary marine protected area between Kenya and Tanzania. The report provides no discussion about transboundary risks to adjacent countries/waterbodies/coastal waters, including threats and risks to fisheries and, in turn, food security.
- Impacts on marine and coastal receptors are not well documented in the SESA. These are known to include, but not be limited to, thermal stress, chemical stress, altered physical characteristics of the water column (pH, sediment dynamics, noise, hydrology, stratification), impingement, entrainment and entrapment of marine organisms – especially plankton (leading to changes to community structure and associated food chain dynamics), nekton and fish and coral larvae,
- No risk assessments provided for the key risks identified for the entire coastal region, namely flooding, insecurity, terrorism, tsunami.

Recommendations

- The NCEA recommends that the SESA adopts and applies the IAEA (2015) Guidelines for site survey and site selection.
- In addition, for the site selection process, the NCEA emphasises the need for the SESA to be precise in relation to the following:
  - Definition of criteria;
  - Operationalisation of all criteria;
  - National and international standards and thresholds;
  - Baseline information that is reviewed and approved by the relevant authorities, taking into consideration relevant regional and county specific development and spatial plans, as well as Land Use and Land Tenure mapping;
  - Assessment of all relevant impacts and/or scores of all the sites during the site selection process need to be presented in an accessible manner for each of the steps;
  - Use of modelling and analytical tools to support site selection is acceptable but the use of these tools needs to be explained as well as the assumptions, limitations and risks;

[8] During the meeting with the Kenya Wildlife Services in Watamu it became clear that the SESA used maps that did not include the boundaries of the Marine reserve at Watamu.

- Take note that for site selection steps 1 and 2, and then step 3 a tailor-made assessment is required, requiring a different level of detail of the assessment (baseline information, impact assessment) as explained in the sections above.

- It is recommended to build upon the sensitivity analysis conducted, to test the robustness of step 3; ranking of the selected candidate sites. Each step of this analysis needs to be justified and traceable. Giving weight to the factors is a political decision and therefore needs to be transparent.
- The NCEA suggests that all maps used in the process of site selection should be made publicly available on a website, so that the process is traceable by all stakeholders. The NCEA is aware that the presentation of detailed maps might result in land speculation, therefore it is suggested to use maps of the country with a medium scale 1: 500.000 to 1: 1.000.000 and indicate larger search areas instead of precise sites.

3.6 Power plant construction, operation and decommissioning

In the SESA Report some issues related to the construction and operation of a power plant have been discussed to a certain extent, for example water consumption (Section 6.3.4. p.162), construction waste (Section 6.6.3.5 and 6.6.3.7, p. 188) and noise (Section 6.5.1.1. p.177). However, the SESA Report does not provide sufficient information on the potential effects during the construction, operational and decommissioning phases as recommended by IAEA Guidelines (2018).

The SESA Report does not provide indications of scale, duration and/or sequencing of activities during construction, operational and decommissioning phase, and no descriptions or consideration of associated infrastructure (e.g., load in/load out jetties etc.). Such descriptions are required to identify risks and impacts as per Section 4.4.2 of IAEA (2018).

Moreover, the NCEA noted during the consultation meetings with stakeholders that they have no idea of the scale of a power plant and the impacts.

Recommendations

- Follow the IAEA Guidelines Section 3.2.2 (2018) on power plant construction, operation and decommissioning.
- To better inform the stakeholders on the scale and the impact of a nuclear power plant and associated infrastructure, the SESA Report should:
  - provide (i) examples of other nuclear power plants located at the coast and/or other locations representative for the Kenyan case; (ii) an illustration or model of the proposed nuclear power plant and related infrastructure by making use of landscape art (rendering). Different viewpoints from land and sea need to be presented; and (iii) illustration of the wider physical infrastructure which will answer questions around impacts and proposed mitigation.
  - in addition, make use of film or video to present the findings of the SESA study to the potential project-affected people. It is further suggested that this film would also be reviewed by NEMA before making it public.

3.7 Nuclear fuel cycle

The nuclear fuel cycle consists of several steps (e.g. mining, conversion, enrichment, fuel fabrication, spent fuel and waste management, and disposal).

Chapter 1.9 and 2.2.3 briefly describe one step of the nuclear fuel cycle, mining. Exploration of uranium and thorium will follow a four-stage process. In the SESA only Stage 1 is considered: Potential resource areas are identified through high-resolution airborne geo-physical surveys. The results of this stage are briefly presented in the SESA. The SESA Report indicates that the nuclear fuel cycle has been elaborated in another report, the Kenya National Nuclear Fuel Cycle Policy and Strategy (2017).

Although recommended by IAEA (2018) the SESA Report does not provide information to understand the potential environmental and related sustainability implications of all steps of the nuclear fuel cycle.

Recommendation
Consider all steps of the nuclear fuel cycle. The steps that will be dealt with nationally need to be considered in more detail than the steps that will be outsourced. Summarise this information from the Kenya National Nuclear Fuel Cycle Policy and Strategy (2017).

3.8 Spent fuel management strategy/radioactive waste storage and disposal

Spent fuel and radioactive waste management ranges from on-site interim storage to (possibly) permanent geological disposal.

Chapter 2.5.6 and 6.3.2 provide brief descriptions on radioactive waste, but information on management of this waste, or an assessment of the options to do so, is not presented. The SESA indicates that there is a Draft National Policy & Strategy for Radioactive Waste Management, 2016/2017 (Section 1.8.1, p.17).

Recommendations
- Elaborate a strategy on waste management as part of the SESA, considering also associated transport for any of the assessed options.
- Summarise in the SESA the Draft National Policy & Strategy for Radioactive Waste Management 2016/2017.

3.9 Physical protection and security

Chapter 6.4.7 of the SESA describes the need for security measures, and the culture of physical protection and security in Kenya. The SESA does not describe how the concern for physical protection and security translates to potential measures, or how this relates to site selection. Notably, the risks and their mitigation need to be described of human induced hazards such as terrorism, especially as the coastal region is more vulnerable to terrorism than, for example, the Lake Victoria region. At the coast, the assumed differences in risk to

terrorism need to be better justified. The results of this study might have an influence on site selection.

There is no need to provide more detailed information on measures to avoid theft, as this can be addressed within an ESIA.

Recommendations

- Explain how physical protection and security relates to, or is taken into account in, site selection.
- Consider conducting a specific study on the risks and mitigation of human induced hazards.

3.10 Emergency preparedness and response

As stated in IAEA Guidelines (2018) for SESA, emergency preparedness relies on the local capacity to ensure an effective response to a nuclear emergency. Infrastructure issue 14 (emergency planning) requires an evaluation of a country's emergency preparedness and response, leading to the establishment of regulations governing all requirements to have emergency response plans. The SESA must feed into and support this process.

SESA chapter 1.10.14. Emergency planning states that the National Emergency Response Plan was reviewed in September 2021. Its present status is not described.

Recommendations

- Include the National Emergency Response Plan as an annex to the SESA. This Plan should include an estimation of risks as presented in the IAEA Guidelines (2018) Figure 8.
- Incorporate the risk assessment element of the plan in the SESA Report. The risk assessment should use maps for each of the proposed sites of the nuclear power plant.
- Include a summary of the emergency preparedness and response plans. Baseline information should provide information on existing capacity. The plan should include what is needed in terms of capacity to ensure adequate response. Recognise that the plan cannot fully be made available, but describe the main elements from the viewpoints of civil society.

3.11 Wider physical infrastructure requirements

The SESA states in general terms (chapter 2.8) that, to enable a safe connection of nuclear energy, large investments in the national grid and considerable time are required. In this regard, the SESA is not site specific and lacks a description of what is required in order to understand what actually needs to be done to support the production and distribution of nuclear power. The impacts of wider infrastructure during the construction and decommissioning phases are not taken into consideration in the SESA, for example land acquisition.

The IAEA Guidelines (2018) recommend that the SESA evaluates:

- The implicit requirements of a national electric grid system drawing in nuclear power. The need for and the scale of potential upgrading of the national supply grid need to be assessed. This is likely to include upgrading and construction of additional transmission lines.
- Requirements of the other wider physical infrastructure such as roads, railways, port and marine facilities, facilities for workers and (non-radioactive) waste management, and the provision of water and energy.

By way of example, during our visits to two potential sites, the NCEA noticed that basic infrastructure (such as hardened roads, water, electricity) is not present. The SESA needs to state this clearly, noting the need for construction as well as upgrading, and check that related information is included in the chapter proving information on the baseline situation.

Recommendations

- Define in the SESA the 'wider physical infrastructure' and include detailed spatial plans with maps, covering: development and upgrading of the existing national grid; road building; housing and attendant facilities to support the plant and its workers during construction and operation including construction of camp sites.
- Include a summary of the national (and trans-boundary) grid development plan in the SESA.
- Assess the consequences for the connection of a nuclear power plant (and research reactor) in terms of time and of environmental, social and economic costs and benefits.
- Collect and analyse data on the description of the environmental baseline situation relating to each element of the wider physical infrastructure.
- Recognise the impacts of these wider infrastructure, in their construction, operational and decommissioning phases.
- Recognise that land needs to be acquired for the wider infrastructure, and a RPF is likely to be required including compensation plans.

3.12 Impact themes

In chapter 6 of the SESA, positive and negative impacts of the Nuclear Power Programme are listed and described. The chapter is difficult to read because the information is incoherent and not well structured. It is not clear whether the descriptions of impacts is related to:

- Justification of Nuclear power programme at national level.
- Type of nuclear power plant/research reactor + cooling.
- Site selection of nuclear power plant and research reactor.
- Selected sites.
- Nuclear fuel cycle options for each of the steps (e.g. mining, conversion, enrichment, fuel fabrication, spent fuel management and disposal).
- Power plant construction and operation and decommissioning.
- Wider physical infrastructure.

As explained in section 3.2 of this advisory report, the NCEA concludes that the SESA needs to distinguish assessment at different geographical levels. That also has an influence on the level of detail of the impacts that need to be described.

The SESA can benefit from the clear guidance in the IAEA Guidelines Section 3.3 (2018) on the structure of the description and assessment of impacts, divided in eight themes. Each of the options defined in each of the seven impact areas should be subject to an assessment of the impacts. Based on a comparative assessment of the impacts for each of the options at different geographical scales a preferred option can be selected or justified in case options have already been selected.

Recommendations

- Include all impact themes from the IAEA Guidelines Section 3.3, or explain why they have not been included.
- Apply the risk assessment approach guided by the IAEA Guidelines 6.1.8.

3.13 Stakeholder engagement and public participation

International best practice and principles have long emphasised that stakeholder mapping, engagement and public participation require a careful, transparent and accountable process, the outcome of which enhances decision-making.

The NCEA notes that recommendations of the Scoping Report (Section 8.3 a) to follow IAEA Guidelines with respect to public consultation and information disclosure have been largely ignored, for example at Section 4.6 with respect to decision-making and at Section 5 which describes a clear Methodology.

The IAEA Guidelines (Section 5.1) describe six main elements of adequate stakeholder engagement, each of them supporting the quality of the decision-making process. The six elements are listed in the left column in the table below; NCEAs findings are set out in the right- hand column and are based upon the review of the SESA Report and consultation with stakeholders during the visit of the NCEA to Kenya. See Annex 3 for a list of stakeholders consulted by the NCEA.

Table 2: Assessment of stakeholder consultation

1. Developing a common understanding 2. Developing mutual trust	Although some public consultations have taken place, they were largely focussed on the public sector. The project proponents have not achieved their goal of reaching a common understanding with a large number of key stakeholders, and mistrust is rife. Inadequate information was provided and there was a lack of responses to questions. Stakeholders, including the broader community of interested and potentially affected people and organisations, have little to no understanding of the scale of the project, its possible location, the potential impacts nor the potential benefits. No description has been offered about the wider physical infrastructure, nor the anticipated project risks, nor any proposed mitigation plans; and illogical answers were given to straightforward questions. The following was reported by stakeholders during consultations with the NCEA: - Incomplete/incorrect information received during consultations; for example, several stakeholder mentioned that they were told that no people would be displaced by the project. - No information was shared describing the size of a nuclear power plant, and the scale of the wider physical infrastructure. No maps nor visuals or sketch maps were used. - Lack of information around nuclear waste disposal e.g.: the following was answered to the following question of a stakeholder, what will be done with nuclear waste?; 'will be sent into space'. - Reported lack of transparency around the management of nuclear hospital waste management. A depot for this type of waste thought to be located in a protected forest nearby Nairobi and lack of information, has given rise to citizens' lack of confidence in the authorities' capacity to manage a nuclear power plant. This was mentioned several times during meetings with NGO representatives. - Language and delivery of information in the meetings was not tailored to the audience, nor was content explained in a manner that could be easily understood. - The draft SESA was provided to some stakeholders only the night before meetings took place, not allowing sufficient time to read, digest and consult internally before the meetings. - The consultation meetings lacked any information relating to resettlement, livelihood, the local environmental and heritage impacts such as: compensation for acquisition of land; impacts on existing key economic drivers in Kenya (e.g., tourism) and potential loss of current livelihoods; the response of the marine environment and possible destruction of cultural sites; none of it weighed against possibilities for employment and other potential benefits for the affected communities as well as the nation as a whole. - A number of stakeholders who attended the 'Validation meetings' feel that their views were disregarded and even dismissed, as meetings closed as soon as contentious issues were tabled.

	Consequently, they refute the word 'Validation', pointing out that their names on a list of attendees does not constitute agreement. - Lack of effective, accessible and participatory grievance mechanism.
3. Developing enhanced acceptance 4. Strengthening civil society 5. Reconciling diverging views	The NCEA noted that key stakeholders from the tourism sector in Watamu have not been consulted. Gaps in stakeholder mapping and consultation process have challenged these key elements: - Although a number of civil society organisations has sent several (official) letters expressing concerns to the proponent NuPEA, none have received an official reply by way of response to their questions or concerns. - A number of stakeholders have expressed independently that meetings were cut short when difficult questions arose from the audience. - Engagements with some government actors appears to be incomplete e.g., National Museums' repository of information and mapping of cultural heritage sites stretching across Kilifi and Kwale has not been accessed. - Awareness raising of affected communities civil society through workshops delivered with appropriate content, style and language has not been facilitated; Good practice consultation requires this to enable communities to be engaged in public consultation meetings. - Indications of actual, verbal and physical violence as well as evidence of retaliation towards community members. Such actions would be counterproductive to building and enhancing trust, acceptance or reconciling divergent views; and would be in direct contravention of not only Kenyan legislation, but also that entrenched as international instruments of human rights and best business practice. Notes from validation workshop indicating inadequate responses: - Issue raised: *Recommended that people from coastal region should be more engaged, especially from Kilifi county* - Response: *None.* - Issue raised: *Will people be displaced?* - Response; *The agency mentioned that the proposed site is in a protected area exclusive to workers only and therefore people will not be displaced.*
6. Preparing a stakeholder engagement and public participation report	The SESA stakeholder mapping focusses on the public sector and is thus incomplete. Consultations also largely focussed on the public sector; even so, during the site visit, NCEA found that some government offices were not informed adequately, or at all, about the project prior to the visit. Some NGOs were invited to attend meetings but it was widely reported to NCEA that invitations were received at short notice, sometimes late on the evening before the meeting. Private sector interests are not taken into consideration either at high or informal level. Community interests were ignored. NCEA was told that their site visit provided the first opportunity for a number of them

	to learn about the project and ask questions. Up to that point, they had relied on hearsay. SESA Annexes III and IV are difficult to navigate as there is no list of Contents and pages are not enumerated. They comprise lists of participants and reports of various meetings nationwide, variously described as 'consultations' (Annex III) or 'validation meetings' culminating in a 'National Validation Workshop' in March 2023 (Annex IV). Copies of Letters of Invitation (or summary of) are not included as stated in the Table of Contents, so it is not possible to ascertain who was invited but was absent. Annexes have not been made available publicly. Lists of participants do not constitute agreement with the content or outcome of a meeting. Reference to 'Validation Meetings' appears to be incorrect terminology. The meetings may have been a form of 'consultation' (albeit incomplete) but we did not meet any stakeholders who considered them participatory, nor that the meetings concluded with participants offering an informed acceptance or 'validation' of either the process or the project.

Source: IAEA Guidelines (Section 5.1)

To conclude, the present SESA process does not meet the principles of good stakeholder engagement and public participation.

Recommendations

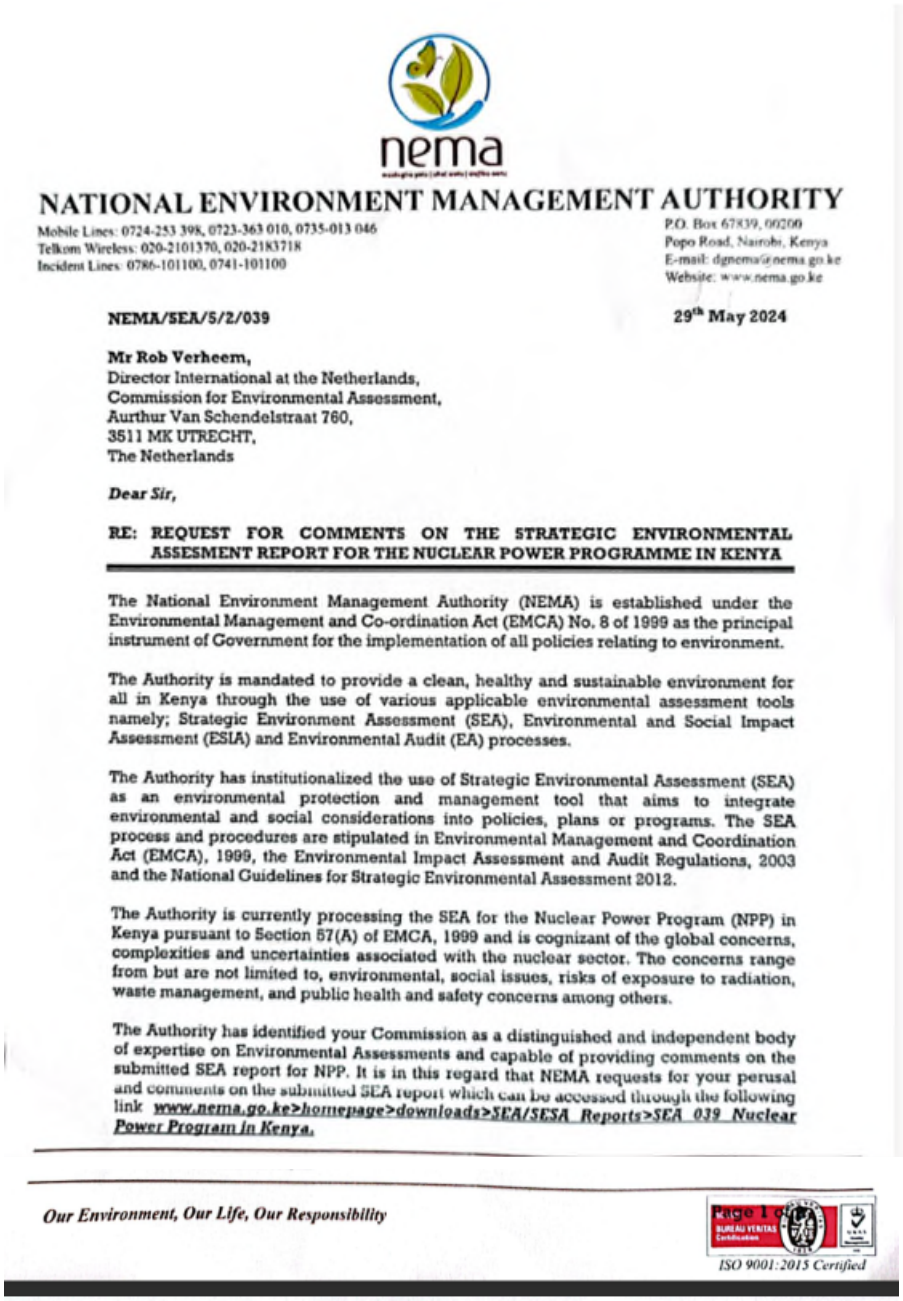
- Adapt the IAEA Guidelines on Methodology (Section 5) to the context of this project and, through that process.
- Include in the SESA a Stakeholder Map setting out the interests of each stakeholder in the project, and their level of influence, for each phase of the programme.
- Ensure that stakeholders are included who were not included in the initial SESA; and that those who have may have received inadequate information, or information in a manner that they were unable to understand, are given an opportunity to be consulted adequately; Include in the SESA a Stakeholder Communications Strategy which clarifies the objectives of stakeholder engagements (ref: IAEA Guidelines Section 5.1.) and embraces principles set out in the SESA chapter 8.3 paragraphs h) and j). The Strategy should be an iterative document allowing for adjustment as the project evolves.
- Provide a single summary of executed consultation/validation meetings with references to enumerated pages for ease of reference.
- Summarise how questions were answered and concerns addressed in the SESA Report to inform both further decision making and a possible need for additional stakeholder engagement;
- Make reports of stakeholder engagement public, allowing a reasonable period for comments before finalising.
- Keep in mind the IAEA Guideline Section 5: 'the part of the process requiring the longest period of time is stakeholder and wider public participation'.

3.14 Monitoring and follow-up actions

In chapter 9 the Nuclear Power Programme – Strategic Environmental and Social Management and Monitoring Plan – is presented. This chapter does not meet the requirements of a Monitoring Plan as requested by the IAEA Guidelines Section 4.7 (2018).

Recommendation
Develop a SESA Monitoring Plan detailing responsibilities, actions/indicators and timelines for both compliance and performance monitoring for each phase of the project: pre-construction, construction, operation and decommissioning.

Annex 1: Letter of request by NEMA



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

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NEMA/SEA/5/2/039 **29th May 2024**

Mr Rob Verheem,
Director International at the Netherlands,
Commission for Environmental Assessment,
Aurthur Van Schendelstraat 760,
3511 MK UTRECHT,
The Netherlands

Dear Sir,

RE: REQUEST FOR COMMENTS ON THE STRATEGIC ENVIRONMENTAL ASSESMENT REPORT FOR THE NUCLEAR POWER PROGRAMME IN KENYA

The National Environment Management Authority (NEMA) is established under the Environmental Management and Co-ordination Act (EMCA) No. 8 of 1999 as the principal instrument of Government for the implementation of all policies relating to environment.

The Authority is mandated to provide a clean, healthy and sustainable environment for all in Kenya through the use of various applicable environmental assessment tools namely; Strategic Environment Assessment (SEA), Environmental and Social Impact Assessment (ESIA) and Environmental Audit (EA) processes.

The Authority has institutionalized the use of Strategic Environmental Assessment (SEA) as an environmental protection and management tool that aims to integrate environmental and social considerations into policies, plans or programs. The SEA process and procedures are stipulated in Environmental Management and Coordination Act (EMCA), 1999, the Environmental Impact Assessment and Audit Regulations, 2003 and the National Guidelines for Strategic Environmental Assessment 2012.

The Authority is currently processing the SEA for the Nuclear Power Program (NPP) in Kenya pursuant to Section 57(A) of EMCA, 1999 and is cognizant of the global concerns, complexities and uncertainties associated with the nuclear sector. The concerns range from but are not limited to, environmental, social issues, risks of exposure to radiation, waste management, and public health and safety concerns among others.

The Authority has identified your Commission as a distinguished and independent body of expertise on Environmental Assessments and capable of providing comments on the submitted SEA report for NPP. It is in this regard that NEMA requests for your perusal and comments on the submitted SEA report which can be accessed through the following link ***www.nema.go.ke>homepage>downloads>SEA/SESA Reports>SEA 039 Nuclear Power Program in Kenya.***

Our Environment, Our Life, Our Responsibility

Page 1 of

ISO 9001:2015 Certified

This request is made pursuant to Section 61 of EMCA, 1999 and Regulations 5 of the EIA/EA regulations of 2003 to guide the Authority on the technical review process of the SEA report and assist in making an informed decision.

Please feel free to share any relevant information on this subject matter and help us in building a rich knowledge base, capacity building and development of guidelines on SEA and ESIAs for the nuclear sector as Kenya embarks on this journey.

Looking forward to your support and feedback.

ROBERT ORINA
FOR: DIRECTOR GENERAL

Annex 2: Programme site visit

Date	Time (of the day)	What	Where
Monday 26 August	Morning	Introductory meeting with NCEA, NEMA, NuPEA and SGS	NEMA's Head office Popo Road
	Late morning/ early afternoon	visit Nairobi stakeholders	
	(Late) afternoon	travel to Kilifi County	
	5.00-6.00 pm	Meeting small scale tourism industry representatives	
Tuesday 27 August	Morning 8.00-11.30 12.00-2.00pm	Undertaking of the site familiarisation visit preferred site in Kilifi County Group interview community representatives	Kilifi County
	Afternoon 3.00-5.00	KIIs with representatives (environmental) CSOs	
Wednesday 28 August	7.30-9.00 (incl breakfast)	KIIs with representatives from tourism industry	
	10.00-12.30	Splitting up: **Group A**: Meet with Governmental actors: KWS, KFS, county officials **Group B:** Meet with representatives civil society	**Group A:** Roving: KWS offices, KFS offices, County offices **Group B** Roving
	Afternoon	NEMA, NuPEA and NCEA Teams travel to Kwale County	
Thursday 29 August	Morning 8.00-13.30	Undertaking of the site familiarisation visit preferred site in Kwale County (2nd preferred location), together with Kwale county officials	Kwale County

	Afternoon 3.00-4.00	Interview civil society Kwale	
	Evening	Preparation for the debriefing session by the NCEA team	
Friday 30 August	Morning	NEMA, NuPEA and NCEA Teams travel to Mombasa County	
	Mid-Morning (9.30-1.00 pm)	De-briefing session - NCEA will present preliminary findings to NEMA and NuPEA teams.	NuPEA offices in Mombasa.
	Late afternoon	Teams traveling back based on their travel arrangements	

Annex 3: List of consulted stakeholders

To draft this advice, we have had exchanges with several (groups of) stakeholders. Not all individuals wished to be named, so some will remain confidential.
The NCEA working group has spoken to:

Representatives from the following governmental agencies:

- Kenya Wildlife Services (Watamu Marine National Park)
- Kenya Forestry Services
- Kilifi County
- Kwale County
- National Museum of Kenya- biodiversity sector/cultural natural sites
- NEMA
- NuPEA
- And others

Representatives from NGOs/CSOs

- A Rocha Kenya
- Bahari Hai
- Centre for Justice Governance and Environmental Action
- CORDIO East Africa
- Local Ocean Conservation
- Nature Kenya
- Watamu Marine Association
- And others

Representatives from the civil society/community

- BMUs
- Women's groups

Representatives from the tourism industry, amongst others;

- Turtle Bay Beach Club
- Temple Point
- Watamu Property services
- And others

Annex 4: SEA for Nuclear Power Programmes: Guidelines

Table 16: SEA Report Quality Review Table IAEA Nuclear Energy Series

Name of reviewer:
Name of SEA:

(1) Non-technical summary	Grade	Comments
The SEA report: Includes a non-technical summary which reports, in simple and clearly comprehensible language, the results of the SEA as portrayed in the SEA report, including options considered, impacts identified and mitigation measures introduced for the preferred option. Evaluation of section (1)		
(2) Introduction and background	**Grade**	**Comments**
The SEA report: Clearly maps out the energy policy and planning framework in the country in which the programme is prepared. Clearly positions the programme within the underlying energy policy and planning framework. States which other policies, plans, programmes and projects are relevant and their relationship to the programme. Evaluation of section (2)		
(3) Nuclear power programme	**Grade**	**Comments**
The SEA report: Clearly describes and explains the objectives of the programme. Explains how the programme contributes towards environmental and sustainable development objectives. Explains the scope of the programme (i.e., what categories of sites and technology are covered). Evaluation of section (3)		
(4) SEA approach	**Grade**	**Comments**
The SEA report: Clearly describes and explains the objectives of the SEA (e.g. environmental protection objectives). Clearly explains the national and international legal and regulatory frameworks governing the SEA.		

Explains the scope, boundaries and methodology of the SEA, along with the options that were assessed. Describes how the SEA and the nuclear power programme processes were coordinated (it is recommended that the SEA take place during the preparation of the programme and be conducted in parallel with it, converging at regular intervals). Outlines all important issues (e.g. the IAEA's 19 nuclear infrastructure issues [14]) that are addressed elsewhere. Evaluation of section (4)	
(5) Environmental status/baseline	**Grade** **Comments**
The SEA report: Provides relevant information on the present status of those environmental, economic and social issues that are expected to be significantly affected, and how they would develop in the absence of the nuclear power programme. Data gaps are also described. Provides information on any current environmental concerns, especially those affecting areas of environmental importance. Carefully considers and explains what issues of the environmental status in other countries need to be taken into account (transboundary issues). Evaluation of section (5)	
(6) Environmental assessment	**Grade** **Comments**
The SEA report: Is in line with what was agreed in the scoping report. Deviations thereof are clearly explained, and it is clear that stakeholders were aware of these deviations. Describes how reasonable mitigation and alternative technological and siting options were identified, considering the objectives and the geographical scope of the nuclear power programme. Provides information on the likely significant environmental impacts (magnitude of impact versus sensitivity of environment) of different options for each of the scoped-in nuclear power impact areas, and for all relevant types of impact (see the points listed in Section 4.4.2) for each of the relevant environmental impact themes (see Section 3.3), and the interrelations between them. The impact areas may include: • Main siting and technological considerations; • Power plant construction, operation, and decommissioning; • Nuclear fuel cycle strategies; • Spent fuel management strategies/radioactive waste storage and disposal; • Physical protection and security; • Emergency preparedness and response; • Wider physical infrastructure requirements.	

Provides information on the foreseen measures to avoid, reduce, or otherwise mitigate any expected significant negative environmental impacts and related sustainability issues. Explains what residual impacts will remain after mitigation. Shows how state of the art knowledge and assessment methods were used. Evaluation of section (6)	
(7) Stakeholder engagement and public participation	**Grade** **Comments**
The SEA report: Describes how (and which) authorities and stakeholders and the public were consulted and explains the results of stakeholder mapping. Describes the outreach strategy and explains how the draft SEA report was made available to authorities and those members of the public likely to be affected or to have an interest in the programme. Confirms that these communication channels were adjusted to the stakeholder groups and enabled them to participate in the engagement process. Confirms that they were allowed to express their opinions within an appropriate time frame. Confirms that results of the consultation on the SEA were considered in decision making and what adjustments were made. Evaluation of section (7)	
(8) Monitoring and evaluation of follow-up recommendations	**Grade** **Comments**
The SEA report: Describes the foreseen measures regarding both conformance and performance monitoring to ensure that the implementation of the nuclear power programme is in line with the SEA recommendations. Specifies what will be monitored by whom, how, and when. In this context, investigates the possibility of using or adjusting existing monitoring mechanisms to avoid duplication. Evaluation of section (8)	
(9) Presentation of information and results	**Grade** **Comments**
The SEA report: Is included as a clearly distinguishable SEA section in the nuclear power programme or as a separate SEA report. Is well written and in language facilitating the engagement of relevant stakeholders. Provides information on any complications (such as technical issues, unreliable data or lack of know-how) and uncertainties faced when collecting and processing data and information.	

Once a decision on the nuclear power programme has been made, provides a statement summarizing how environmental considerations were taken into account in the programme, based on the SEA report and stakeholder consultations. Explains the programme in its final form with regard to the excluded alternative options that were assessed. Evaluation of section (9)	
Overall grade for SEA report	
Additional notes	