MISSION REPORT
ON
THE PHASE 1 FOLLOW-UP
INTEGRATED NUCLEAR INFRASTRUCTURE REVIEW (INIR)
MISSION

Counterpart:
Nuclear Power Energy Agency (N*u*PEA)

8-11 June 2021
Nairobi, Kenya

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EXECUTIVE SUMMARY

The International Atomic Energy Agency (IAEA) conducted a Phase 1 Integrated Nuclear Infrastructure Review (INIR) mission in Kenya in August 2015. In October 2018, Kenya requested the IAEA to conduct a follow-up INIR mission to review the status of implementation of the recommendations and suggestions from the 2015 INIR mission.

The Phase 1 follow-up INIR mission was conducted from 8 to 11 June 2021. The mission was organized in a hybrid format with two IAEA experts travelling to Kenya and two international experts participating virtually. Interviews were conducted over three days. During the interviews, the Kenyan counterparts provided further explanations and updates and responded to the INIR team's questions on the content of the Action Plan Progress Report and supporting documentation that Kenya had sent to the IAEA in advance of the follow-up mission.

During the 2015 INIR mission the team made 15 Recommendations and 8 Suggestions. At the follow-up INIR mission, it was concluded that:

- Kenya has completely addressed ten Recommendations and four Suggestions;
- There is on-going progress in the implementation of an additional three Recommendations and two Suggestions; and
- Two Recommendations and two Suggestions were not yet addressed.

It is worth mentioning the following areas where considerable progress was achieved:

- Kenya enacted a national nuclear law and created a Regulatory Body with clear responsibilities for Nuclear Safety, Security and Safeguards;
- The Government assessed its legal framework and identified other laws needing review;
- Kenya also developed a number of policies and strategies to enable the Government to make an informed decision on the introduction of nuclear power;
- Coordination between the main stakeholders was enhanced through the establishment of various Technical Working Groups with members drawn from the relevant institutions;
- Kenya finalized the site selection activities, identifying one preferred and one alternative site.

The INIR team concluded that further work was needed in areas such as the assessment of emergency preparedness and response requirements, the identification of senior managers for the regulator, the development of a national leadership programme and the assessment and suitability of radioactive waste management options.

1. INTRODUCTION

The International Atomic Energy Agency (IAEA) conducted a Phase 1 Integrated Nuclear Infrastructure Review (INIR) mission in Kenya from 24 to 31 August 2015. That mission concluded that Kenya had made significant progress in its preparations to make a decision related to the introduction of nuclear power. Kenya had made a notable investment in human capacity building and thoroughly considered all of the infrastructure issues described in the IAEA publication entitled *Milestones in the Development of a National Infrastructure for Nuclear Power, IAEA Nuclear Energy Series No.*NG-G-3.1 (Rev. 1).

In order to assist Kenya in making further progress in its infrastructure development, the INIR mission team made 15 Recommendations and 8 Suggestions, many of which related to the planning of Phase 2 activities.

In a letter dated 31 October 2018, the Kenya Nuclear Electricity Board (KNEB) writing on behalf of the Government of Kenya requested the IAEA to conduct a Phase 1 follow-up INIR mission in Kenya. Following the enactment of the Energy Act 2019, KNEB became the Nuclear Power and Energy Agency (N*u*PEA). N*u*PEA coordinated the preparation of an Action Plan Progress Report. Due to the COVID-19 pandemic, the mission, initially planned for March 2020, was postponed and conducted from 8 to 11 June 2021. The Action Plan Progress Report and the supporting documents were provided one month prior to the follow-up mission.

The Principal Secretary of the Ministry of Energy, Dr Eng. Joseph Njoroge, gave the Key Note Speech and officially opened the Follow-up INIR Mission, Mr. Ezra Odondi Odhiambo, Chairman of the Nuclear Power and Energy Agency (N*u*PEA) Board, gave the opening remarks and Eng. Collins Juma, Chief Executive Officer of N*u*PEA and National Liaison Officer for Kenya gave welcoming address. On the Kenyan side, the mission was coordinated by Eng. Eric Ohaga, Director of Nuclear Energy Infrastructure Development, N*u*PEA. The INIR team was led by Mr Eric Mathet of the IAEA Nuclear Infrastructure Development Section of the IAEA. The full list of participants is included in Appendix 1 of this report.

During the closing session, the Phase 1 Follow-up INIR Mission Report was delivered to the Chief Administrative Secretary of the Ministry of Energy, Mr Zachary Ayieko, official representative of the Cabinet Secretary of the Ministry of Energy, Hon. Charles Keter.

The follow-up INIR mission and associated activities were funded through a combination of a cost-sharing contribution from the Government of Kenya and funds from the IAEA Technical Cooperation (TC) project KEN2008 ’Enhancing the Technical and Regulatory Capacity to Implement the First Nuclear Power Plant Project’.

2. OBJECTIVES OF THE MISSION

The main objective of the Phase 1 follow-up INIR mission was to assess the level of implementation of the Recommendations and Suggestions provided by the 2015 INIR mission.

3. SCOPE OF THE MISSION

The follow-up INIR mission focused on how Kenya has addressed the recommendations and suggestions given on the status of the infrastructure issues identified in the Phase 1 INIR Mission Report. Kenya prepared the Action Plan Progress Report covering all Recommendations and Suggestions issued for Phase 1.

4. WORK DONE

Prior to the follow-up INIR mission, the INIR team reviewed Kenya's Action Plan Progress Report summarizing the actions taken to address recommendations and suggestions as well as the supporting information (relevant national laws, regulations, reports, presentations, etc.). As part of this review, the INIR team also sought input from other IAEA staff members with relevant expertise.

The follow-up INIR mission was conducted from 8 to 11 June 2021. The mission was organized in a hybrid format with two IAEA staff members travelling to Kenya and two international experts participating virtually. The meetings were held at the Hotel Emara Ole Sereni in Nairobi. The main interviews were conducted over three days. During the interviews, the Kenyan counterparts provided further explanations and responded to the experts' questions on the content of the Action Plan Progress Report and supporting documents.

A preliminary draft report on the follow-up mission was prepared by the INIR team and discussed with the counterparts as part of the mission. The follow-up mission conclusions were presented to representatives of the Government in an exit meeting on 11 June 2021. The preliminary draft report was delivered to the counterparts during the exit meeting.

The evaluation results for the Phase 1 follow-up INIR mission, including a description of actions taken by Kenya since the 2015 INIR mission for each Recommendation and Suggestion, are included in Chapter 6 of this report.

5. MAIN CONCLUSIONS

The follow-up INIR mission was conducted in a cooperative and open atmosphere with participants representing 23 organizations in Kenya involved in the nuclear power programme and corresponding infrastructure. The full list of participants can be found in Appendix 1.

The follow-up INIR team concluded that:

- Kenya has completely addressed ten Recommendations and four Suggestions;
- There is on-going progress in the implementation of an additional three Recommendations and two Suggestions; and
- Two Recommendations and two Suggestions were not yet addressed.

It is worth mentioning the following areas where considerable progress was achieved:

- Kenya enacted a national nuclear law, *The Nuclear Regulatory Authority Act 2019*, and created a Regulatory Body, the Kenya Nuclear Regulatory Authority (KNRA), with clear responsibilities for Nuclear Safety, Security and Safeguards;
- The Government assessed its legal framework and identified other laws needing review;

- Kenya also developed a number of policies and strategies to enable the Government to make an informed decision on the introduction of nuclear power;
- Coordination between the main stakeholders was enhanced through the establishment of various Technical Working Groups with members drawn from the relevant institutions;
- Kenya finalized the site selection activities, identifying one preferred and one alternative site.

The INIR team concluded that further work was needed in areas such as the assessment of emergency preparedness and response requirements, the identification of senior managers for the regulator, the development of a national nuclear power leadership programme and the assessment and suitability of radioactive waste management options.

6. RESULTS OF THE FOLLOW-UP FOR PHASE 1

For the purposes of the follow-up INIR mission results, the following definitions are used regarding the status:

No action taken:

The recommendation or suggestion has not been taken into account or work on this issue has not started yet.

Work in progress:

Actions have been taken following the recommendation or the suggestion in the INIR report but have yet to produce their effects for the issue to be considered addressed.

Completed:

The actions taken following the recommendation of the suggestion in the INIR report have solved the issue which is considered addressed.

It should be noted that the results summarized in the following tables neither validate the country actions and programmes, nor certify the quality and completeness of the work done by a country

1. National position	**Phase 1**		
Recommendation/Suggestion	**Status**		
	No action taken	**Work in progress**	**Completed**
S-1.1.1 N*u*PEA is encouraged to submit the policies and strategies for safety, security and non-proliferation to the Government for endorsement.	**X**		
R-1.2.1 Kenya should enhance coordination among the relevant stakeholders to support the development of the nuclear power programme.			**X**
2. Nuclear safety	**Phase 1**		
Suggestion	**Status**		
	No action taken	**Work in progress**	**Completed**
S-2.1.1 Kenya is encouraged to develop and implement a strategy to ensure the key stakeholders, including senior leaders, obtain a thorough knowledge of the IAEA Safety Standards and safety culture.		**X**	
3. Management	**Phase 1**		
Suggestions	**Status**		
	No action taken	**Work in progress**	**Completed**
S-3.1.1 N*u*PEA is encouraged to develop a national nuclear power leadership programme.	**X**		
S-3.1.2 N*u*PEA is encouraged to broaden its knowledge of management system requirements, including relevant IAEA requirements and guidance, for key organisations.			**X**
4. Funding and financing	**Phase 1**		
Recommendations	**Status**		
	No action taken	**Work in progress**	**Completed**
R-4.1.1 N*u*PEA should complete its work to estimate the order of magnitude cost of developing the major elements of nuclear infrastructure in order to inform the Government of future budgetary requirements.			**X**
R-4.1.2 N*u*PEA should conduct financial modelling to inform the Government on potential financing and ownership options.			**X**

5. Legal framework	Phase 1		
Recommendations/Suggestion	**Status**		
	No action taken	**Work in progress**	**Completed**
S-5.1.1 Kenya is encouraged to complete the early ratification of the conventions in the area of nuclear safety which it has identified as a priority.		**X**	
R-5.2.1 Kenya should finalize a single Bill to cover all nuclear regulatory matters and determine its approach for regulatory oversight of the nuclear power programme.			**X**
R-5.2.2 Kenya should complete the process for reviewing all relevant laws that need to be considered in relation to its nuclear power program.			**X**
6. Safeguards	**Phase 1**		
Recommendation/Suggestion	**Status**		
	No action taken	**Work in progress**	**Completed**
R-6.1.1 Kenya should plan for rescinding its Small Quantities Protocol in a timely manner.			**X**
S-6.2.1 Kenya is encouraged to develop a plan for enhancing the SSAC.			**X**
7. Regulatory framework	**Phase 1**		
Recommendations	**Status**		
	No action taken	**Work in progress**	**Completed**
R-7.1.1 Kenya should plan the activities to be undertaken by the future regulatory body for early Phase 2 and identify the resources and external technical support necessary.			**X**
R-7.1.2 Kenya should identify the potential senior leaders for the future regulatory body.	**X**		
8. Radiation protection	**Phase 1**		
Recommendations	**Status**		
	No action taken	**Work in progress**	**Completed**
R-8.1.1 Kenya should identify how the existing radiation protection programme will be enhanced to address the requirements related to nuclear power.			**X**

9. Electrical grid	**Phase 1**		
There were no recommendations or suggestions in this area in the 2015 INIR Mission.			
10. Human resource development	**Phase 1**		
Recommendation	**Status**		
	No action taken	**Work in progress**	**Completed**
R-10.1.1 Kenya should further develop its national human resource development strategy for the nuclear power programme, including planning for Phase 2.			**X**
11. Stakeholder involvement	**Phase 1**		
There were no recommendations or suggestions in this area in the 2015 INIR Mission.			
12. Site and supporting facilities	**Phase 1**		
Suggestion	**Status**		
	No action taken	**Work in progress**	**Completed**
S-12.1.1 Kenya is encouraged to prepare for the completion of site selection activities, in accordance with a process endorsed by relevant stakeholders.			**X**
13. Environmental protection	**Phase 1**		
There were no recommendations or suggestions in this area in the 2015 INIR Mission.			
14. Emergency planning	**Phase 1**		
Recommendation	**Status**		
	No action taken	**Work in progress**	**Completed**
R-14.1.1 Kenya should assess the emergency preparedness and response requirements and resources necessary for nuclear power.	**X**		
15. Nuclear security	**Phase 1**		
Recommendation	**Status**		
	No action taken	**Work in progress**	**Completed**
R-15.1.1 Kenya should designate the competent authority that will develop the national threat assessment and a design basis threat for the nuclear power programme.			**X**

16. Nuclear fuel cycle	**Phase 1**		
Recommendation	**Status**		
	No action taken	**Work in progress**	**Completed**
R-16.1.1 Kenya should assess the suitability of fuel cycle options, and define and document the national high level goals and requirements for establishing the nuclear fuel cycle.			**X**
17. Radioactive waste management	**Phase 1**		
Recommendation	**Status**		
	No action taken	**Work in progress**	**Completed**
R-17.1.1 Kenya should assess the suitability of radioactive waste management options for processing, handling, storing and disposal of different radioactive waste types, and define and document the national high-level goals and requirements.		**X**	
18. Industrial involvement	**Phase 1**		
Recommendation	**Status**		
	No action taken	**Work in progress**	**Completed**
R-18.1.1 Kenya should complete its plans to perform a nuclear power specific industrial capability survey and develop a national policy to guide industrial involvement planning and capacity building.		**X**	
19. Procurement	**Phase 1**		
Suggestion	**Status**		
	No action taken	**Work in progress**	**Completed**
S-19.1.1 Kenya is encouraged to clarify the responsibilities and associated plans to establish the necessary capability to manage Phase 2 procurement activities.			**X**

6.1.National position

2015 Mission Suggestion	
S-1.1.1	N*u*PEA is encouraged to submit the policies and strategies for safety, security and non-proliferation to the Government for endorsement.

Action taken since the 2015 INIR mission

The policies and strategies have not yet been submitted to the Government for endorsement.

Suggestion status: No action taken

2015 Mission Recommendation	
R-1.2.1	Kenya should enhance coordination among the relevant stakeholders to support the development of the nuclear power programme.

Action taken since the 2015 INIR mission

In 2015, 2017, 2018, 2019 and 2021, Kenya held regional and national nuclear stakeholder conferences on nuclear energy. To specifically address the activities to be performed during this phase of the development of the programme, N*u*PEA established various Technical Working Groups (TWGs) with members drawn from relevant stakeholder institutions. NuPEA coordinated with the Kenya Nuclear Regulatory Authority (KNRA) on the development and enactment of the Nuclear Regulatory Act 2019 and has continuously engaged the parliamentary committees (National Assembly and Senate) on energy on various activities.

Recommendation status: Completed

6.2.Nuclear safety

2015 Mission Suggestion	
S-2.1.1	Kenya is encouraged to develop and implement a strategy to ensure the key stakeholders, including senior leaders, obtain a thorough knowledge of the IAEA Safety Standards and safety culture.

Action taken since the 2015 INIR mission

Kenya has prepared a *Draft Leadership and Management Framework for Nuclear Safety* presenting the key attributes that are expected in involved organizations. This document does not currently include the activities planned to provide awareness at the national level of the IAEA safety standards and develop safety culture for all stakeholders.

Suggestion status: Work in progress

6.3.Management

2015 Mission Suggestion	
S-3.1.1	N*u*PEA is encouraged to develop a national nuclear power leadership programme.

Action taken since the 2015 INIR mission

NuPEA has developed two documents: *Grading and Organisation Structure* and *Career Guidelines*.

While these documents identify leadership positions and their associated qualification/experience requirements, they do not relate to developing a national nuclear leadership programme nor do they include any nuclear educational or experiential requirements for either senior or technical positions.

Suggestion status: No action taken

2015 Mission Suggestion	
S-3.1.2	N*u*PEA is encouraged to broaden its knowledge of management system requirements, including relevant IAEA requirements and guidance, for key organisations.

Action taken since the 2015 INIR mission

N*u*PEA achieved ISO 9001:2015 certification on 30 May 2018. An initial IAEA Capacity Building Expert Mission on Integrated Management Systems (IMS) was hosted by NuPEA in May 2018, with a follow-up expert mission on integration of ISO 9001:2015 with the IAEA safety standards on process-based management system, and development and implementation of an integrated management system, conducted in July 2019. The follow-up expert mission mentioned above was attended by representatives from N*u*PEA, Kenya Electricity Generating Company (KENGEN) and the Radiation Protection Board (RPB). In this expert mission it was stated that NuPEA intends to adopt an IMS "as one way to bring coordination to the activities".

Suggestion status: Completed

6.4.Funding and financing

2015 Mission Recommendation	
R-4.1.1	N*u*PEA should complete its work to estimate the order of magnitude cost of developing the major elements of nuclear infrastructure in order to inform the Government of future budgetary requirements.

Action taken since the 2015 INIR mission

N*u*PEA has developed draft cost estimates related to the development of all Infrastructure Issues. The draft cost estimates include the establishment of the Regulatory Body and of a National Coordinating Authority for radiological emergencies and the enhancement of the existing radiation protection infrastructure. N*u*PEA estimated the draft cost of the stakeholder involvement programme, the electrical grid, the siting and environmental activities. N*u*PEA works also include cost estimates for other stakeholders involved in the infrastructure development.

Recommendation status: Completed

2015 Mission Recommendation	
R-4.1.2	N*u*PEA should conduct financial modelling to inform the Government on potential financing and ownership options.

Action taken since the 2015 INIR mission

A technical study including financial modelling is being conducted by N*u*PEA to analyse various financing options for Kenya's first nuclear power plant (NPP). Further to the study, Kenya indicated that it would assess the suitable financing model(s) for its first nuclear project.

Recommendation status: Completed

6.5.Legislative framework

2015 Mission Suggestion	
S-5.1.1	Kenya is encouraged to complete the early ratification of the conventions in the area of nuclear safety which it has identified as a priority.

Action taken since the 2015 INIR mission

N*u*PEA, in collaboration with the Ministry of Energy, the Ministry of Foreign Affairs and the Office of the Attorney General, has prioritised the ratification of 4 conventions adopted under the auspices of the IAEA, which they have not yet adhered to:

- Convention on Nuclear Safety;
- Convention on Early Notification of a Nuclear Accident;
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency;
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

In 2020, NuPEA prepared a *Technical Paper on the International Nuclear Liability Regime* to inform the Government of its obligations regarding the adherence to the conventions on civil liabilities for nuclear damages.

Suggestion status: Work in progress

2015 Mission Recommendation	
R-5.2.1	Kenya should finalize a single Bill to cover all nuclear regulatory matters and determine its approach for regulatory oversight of the nuclear power programme.

Action taken since the 2015 INIR mission

Kenya enacted the Nuclear Regulatory Act No. 29 of 2019 (date of assent: 27 December 2019) which is the national law that provides for a framework for the regulation of safe, secure and peaceful utilization

of atomic energy and nuclear technology; the production and use of radiation sources and the management of radioactive waste.

Recommendation status: Completed

2015 Mission Recommendation	
R-5.2.2	Kenya should complete the process for reviewing all relevant laws that need to be considered in relation to its nuclear power program.

Action taken since the 2015 INIR mission

In 2019, N*u*PEA conducted an initial review of existing national laws that are relevant to the development of Kenya's Nuclear Power Programme and made appropriate recommendations for changes where necessary.

In 2020, after approval of the Nuclear Regulatory Act, N*u*PEA, with support from other relevant stakeholders, prepared a concept note addressing the process for the review of those laws.

NuPEA and the stakeholders prepared a plan to harmonize the relevant legislation with the Nuclear Regulatory Act. All relevant laws have been divided into two groups:

1. Review of Legislations related to implementation of Nuclear Regulatory Act, 2019, and
2. Legislations Reviewed, with no Conflicts/Issues Emerged.

Recommendation status: Completed

6.6.Safeguards

2015 Mission Recommendation	
R-6.1.1	Kenya should plan for rescinding its Small Quantities Protocol in a timely manner.

Action taken since the 2015 INIR mission

NuPEA drafted a report on Kenya Nuclear Safeguards Framework. This report includes an Action Plan for the transition from the Small Quantities Protocol (SQP) to Full Scope Comprehensive Safeguards Agreement (CSA) Implementation. This Action Plan is based on a gap analysis of the issues that must be carried out and proposes a schedule for the actions, with those responsible organizations and the estimated timeline.

Recommendation status: Completed

2015 Mission Suggestion	
S-6.2.1	Kenya is encouraged to develop a plan for enhancing the SSAC.

Action taken since the 2015 INIR mission

The same Action Plan for the transition from the SQP to Full Scope CSA Implementation includes the enhancement of the State's System of Accounting for and Control of Nuclear Material (SSAC).

Suggestion status: Completed

6.7.Regulatory framework

2015 Mission Recommendation	
R-7.1.1	Kenya should plan the activities to be undertaken by the future regulatory body for early Phase 2 and identify the resources and external technical support necessary.

Action taken since the 2015 INIR mission

KNRA has prepared a draft Strategic Plan for the period 2021-2025. The plan includes the organizational structure, the staffing proposal, the human resources strategy, the financial needs, and the implementation proposal (matrix).

N*u*PEA has prepared a matrix of emerging legal and regulatory issues relevant to the development of nuclear power programme. It includes areas where regulations need to be developed. It also refers to the need to develop human resource planning and capacity building.

KNRA has developed a road map prioritizing those regulations which need to be drafted in a short time period.

Recommendation status: Completed

2015 Mission Recommendation	
R-7.1.2	Kenya should identify the potential senior leaders for the future regulatory body.

Action taken since the 2015 INIR mission

No evidence was provided about the identification of potential senior leaders for the future regulatory body.

Recommendation status: No Action Taken

6.8.Radiation protection

2015 Mission Recommendation	
R-8.1.1	Kenya should identify how the existing radiation protection programme will be enhanced to address the requirements related to nuclear power.

Action taken since the 2015 INIR mission

N*u*PEA has issued a Radiation Protection Framework for the Kenyan Nuclear Power Programme. It identifies the additional radiation hazards with the introduction of a NPP, addresses the current radiation protection framework for the country and gives recommendations to address the requirements related to nuclear power.

Recommendation status: Completed

6.9.Electrical grid

There were no findings in this area in the 2015 INIR mission report.

6.10. Human resource development

2015 Mission Recommendation	
R-10.1.1	Kenya should further develop its national human resource development strategy for the nuclear power programme, including planning for Phase 2.

Action taken since the 2015 INIR mission

A human resource development (HRD) strategy has already been developed and has been updated. N*u*PEA has adopted the IAEA's nuclear power human resources (NPHR) modelling tool and has collected data to tailor the model to Kenya's specific needs. This data has been used to finalise the HRD strategy and the output from the NPHR project will be used to guide the development of the Competency Gap Assessment Study.

Planning for Phase 2, including education and training requirements, is included in the strategy and was further explained during the mission.

Recommendation status: Completed

6.11. Stakeholder involvement

There were no findings in this area in the 2015 INIR mission report.

6.12. Site and supporting facilities

2015 Mission Suggestion	
S-12.1.1	Kenya is encouraged to prepare for the completion of site selection activities, in accordance with a process endorsed by relevant stakeholders.

Action taken since the 2015 INIR mission

The Site Selection Team composed of specialists drawn from different stakeholder institutions, from ministries, agencies, parastatals, and regulators and a utility, adopted a staged approach to the determination of candidate sites. The first stage, a survey of the entire country using high-level general criteria, resulted in the identification of regions of interest. The second stage, using more specific criteria, led to the determination of 13 potential sites.

Desktop studies and field investigations were conducted in the third stage to screen the 13 potential sites using exclusionary and discretionary criteria related to geology, seismology and geotechnical hazards, hydrology, population and emergency planning, environment, land and infrastructure, human induced events, meteorology and atmospheric dispersion. One preferred and one alternative site were identified.

Suggestion status: Completed

6.13. Environmental protection

There were no findings in this area in the 2015 INIR mission report.

6.14. Emergency planning

2015 Mission Recommendation	
R-14.1.1	Kenya should assess the emergency preparedness and response requirements and resources necessary for nuclear power.

Action taken since the 2015 INIR mission

No information relevant to Emergency Preparedness and Response (EPR) related to nuclear power was provided.

Recommendation status: No Action Taken

6.15. Nuclear Security

2015 Mission Recommendation	
R-15.1.1	Kenya should designate the competent authority that will develop the national threat assessment and a design basis threat for the nuclear power programme.

Action taken since the 2015 INIR mission

The Nuclear Regulatory Act of 2019 (No. 89) states: "The Authority (KNRA) shall co-ordinate threat assessment to be done by the national security institutions".

Recommendation status: Completed

6.16. Nuclear fuel cycle

2015 Mission Recommendation	
R-16.1.1	Kenya should assess the suitability of fuel cycle options, and define and document the national high level goals and requirements for establishing the nuclear fuel cycle.

Action taken since the 2015 INIR mission

Kenya developed a draft nuclear fuel cycle policy and strategy which provided requirements and strategy for both front-end and back-end of the fuel cycle (fiscal year 2016/2017). There was an IAEA review workshop in 2016, during which IAEA experts provided feedback and recommendations. The document assesses each stage of the fuel cycle, discusses the options, explores the challenges and makes recommendations for government.

Recommendation status: Completed

6.17. Radioactive waste

2015 Mission Recommendation	
R-17.1.1	Kenya should assess the suitability of radioactive waste management options for processing, handling, storing and disposal of different radioactive waste types, and define and document the national high-level goals and requirements.

Action taken since the 2015 INIR mission

Kenya has developed a draft Policy on Radioactive Waste Management. This document is incomplete, with gaps in content and some inconsistencies.

Recommendation status: Work in progress

6.18. Industrial involvement

2015 Mission Recommendation	
R-18.1.1	Kenya should complete its plans to perform a nuclear power specific industrial capability survey and develop a national policy to guide industrial involvement planning and capacity building.

Action taken since the 2015 INIR mission

In 2017, N*u*PEA established an Industrial Involvement TWG comprising membership of industrial sector players. In 2018, the TWG developed a guide document to advise on the methodology to be adopted in the development of a strategy and a policy. A policy recommendation report was developed, identifying challenges and gaps in the industry which will feed into the development of the Industrial Involvement policy. Sample field surveys of steel, cement, aggregate and transportation companies with potential for involvement in the NPP project were conducted. In addition, large domestic infrastructure and conventional power plant projects were reviewed to learn about goods and services provided locally.

Recommendation status: Work in progress

6.19. Procurement

2015 Mission Suggestion	
S-19.1.1	Kenya is encouraged to clarify the responsibilities and associated plans to establish the necessary capability to manage Phase 2 procurement activities.

Action taken since the 2015 INIR mission

A Nuclear Procurement Technical Working Group was created under N*u*PEA in 2020. It is currently implementing a workplan to prepare a guide on nuclear procurement with all stakeholders involved, including the National Treasury, and to establish the necessary capabilities in Kenya for Phase 2 of the programme for the procurement activities.

Suggestion status: Completed

APPENDIX 1: LISTS OF THE INIR TEAM AND COUNTERPARTS

INIR MISSION REVIEW TEAM	
Eric Mathet	Team Leader, IAEA
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Julio Barcelo	International Expert
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Dr. Hashim Nadir	Kenyatta University
Dr. Zacharia Kuria	University of Nairobi
Edwin Chesire	Nuclear Power and Energy Agency
Elly Omondi	Nuclear Power and Energy Agency
Elvis Njenga	Nuclear Power and Energy Agency
Emmanuel Mulehane	Nuclear Power and Energy Agency
Eng. Erick Ohaga	Nuclear Power and Energy Agency
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Francis Chwanya	National Environmental Management Authority
Gitobu Manyara	Nuclear Power and Energy Agency
Grace Ateka	Kenya Bureau of Standards
Harrison Ngugi	Nuclear Power and Energy Agency
Hilda Mpakany	Nuclear Power and Energy Agency
Humphrey Lumadede	Kenya Institute of Research and Development Institute
James Mutinda	Nuclear Power and Energy Agency
Janet Aketch Olewe	Water Resource Authority
Jilani Chigulu Chiro	National Environmental Management Authority
Joe Mwangi	Nuclear Power and Energy Agency
John Muigai	Nuclear Power and Energy Agency
Joseph Nduma	Nuclear Power and Energy Agency

REPRESENTATIVE	ORGANIZATION
June Omole	Kenya Power & Lighting Company
Katua Muinde	Nuclear Power and Energy Agency
Kenneth Anakoli	Nuclear Power and Energy Agency
Lilian Matu	Nuclear Power and Energy Agency
Lilian Muyumba	Nuclear Power and Energy Agency
Lilian Wanjama	Ministry of Energy
Matthew Nyamu	Ministry of Industry and Enterprise Development
Mokua Onyiego	Office of the President
Lilian Matagaro	Attorney General's Office
Nancy Mberia	Nuclear Power and Energy Agency
Norbert K. Mambo	Ministry of Energy
Pauline Mulongo	Nuclear Power and Energy Agency
Peter Mutembei	Nuclear Power and Energy Agency
Prof. Michael Gatari	University of Nairobi
Rachel Osendo	Kenya Law Reforms Commission
Ruth Achieng	Nuclear Power and Energy Agency
Samuel Ngeiywa	Directorate of Criminal Investigations
Samuel Opana	Kenya Power & Lighting Company
Shadrack Kiti	Kenya Nuclear Regulatory Authority
Stanslaus Masinza	Kenya Accreditation Service
Sylvester Makaka	Kenya Association of Manufacturers
Tania Monica	Kenya Bureau of Standards
Victor Musembi	Nuclear Power and Energy Agency
Willis Ochieng	Kenya Electricity Generating Company
Abdub Galgallo	Nuclear Power and Energy Agency
Situma Stephen	National Commission for Science Technology &Innovation

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APPENDIX 3: ABBREVIATIONS

CEO	Chief Executive Officer
CSA	Comprehensive Safeguards Agreement
EPR	Emergency Preparedness and Response
HRD	Human Resource Development
IAEA	International Atomic Energy Agency
IMS	Integrated Management System
INIR	Integrated Nuclear Infrastructure Review
KENGEN	Kenya Electricity Generating Company
KNEB	Kenya Nuclear Electricity Board
KNRA	Kenya Nuclear Regulatory Authority
NLO	National Liaison Officer
NPHR	Nuclear Power Human Resources
NPP	Nuclear Power Plant
N*u*PEA	Nuclear Power and Energy Agency
RPB	Radiation Protection Board
SQP	Small Quantities Protocol
SSAC	State's System of Accounting for and Control of Nuclear Material
TC	Technical Cooperation
TWG	Technical Working Group