

Webinar #1

Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes

Webinar Series: Nuclear Infrastructure Publications Updates



Nuclear Infrastructure Development Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes

Housekeeping



The webinar is recorded



Materials and recording will be posted on the webinar web-page



Q&A button for all questions





Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes



Objectives

- Increase awareness of the complexity of the IAEA support needed for the development of national infrastructure needed for a nuclear power programme
- Gain insights on the integrative and complimentary support provided by the IAEA
- Strengthen our knowledge of the adaptation of the IAEA support to the evolving needs of the Member States
- Raise our awareness of the achievements gained through the IAEA support

Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes

Our speakers today





Liliya Dulinets NIDS, IAEA

Mehmet Ceyhan NIDS, IAEA



George Appiah GAEC, Ghana



Mohammed Dwiddar El-Dabaa NPP Project, Egypt





Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes





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Poll Time

At the moment your country is...

- considering a new nuclear power programme;
- ready to take a decision or already decided and preparing infrastructure;
- negotiating the first NPP contract or building the first NPP;
- relaunching or expanding an existing nuclear power programme;
- operating NPPs and is also a nuclear technology/reactor provider;
- None of the above.



Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes

Ms. Liliya Dulinets

- Deputy Director, Nuclear Energy Department, Ministry of Energy of the Republic of Belarus
- Over 14 years of experience in the nuclear power program implementation:
 - Nuclear power project management
 - State management in environmental protection
 - International cooperation in the energy field
- Worked over 10 years at the Thermal Power station
- Graduated from the Belarusian Technical University







Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes

Mr Mehmet Ceyhan

- Nuclear Engineer (Infrastructure), Nuclear Infrastructure Development Section, IAEA
- Almost 30 years of experience at the national and international levels in
 - Nuclear safety
 - Nuclear technologies
 - Nuclear infrastructure development
- Coordinator of a number of IAEA Integrated Nuclear Infrastructure Review missions
- Team Leader for Uganda INIR Phase 1 Mission







Integrated Nuclear Infrastructure Review (INIR) Service – Common Challenges and Good Practices

Mehmet CEYHAN Nuclear Infrastructure Development Section, IAEA

NIDS Webinar, 8 June 2022

Milestones Approach for Nuclear Power Infrastructure Development

- **Phased**
- Comprehensive
- Integrated







planning













involvement







Integrated Nuclear Infrastructure Review (INIR) Service

- The objective of an INIR mission is to assist the Member State in determining the status of its nuclear power infrastructure development
- It evaluates the status of the infrastructure, identifies gaps and provide recommendations and suggestions to the host MS
- International expert peer review led by a senior IAEA staff
- Requested by Member State government with results delivered to government (and decisionmakers)

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INIR Brochure





INIR Missions 2009-2022 34 INIR Missions in 24 Member States





2.	Indonesia (Phase 1)	2009	
3.	Viet Nam (Phase 1)	2009	
4.	Thailand (Phase 1)	2010	
5.	UAE (Phase 2)	2011	
6.	Bangladesh (Phase 1&2)	2011	
7.	Jordan follow-up	2012	
8.	Belarus (Phase 1&2)	2012	
9.	Viet Nam (Phase 2)	2012	
10	Poland (Phase 1)	2013	
11	South Africa (Phase 2)	2013	
12	. Turkey (Phase 2)	2013	
13	. Jordan (Phase 2)	2014	
14.	Viet Nam follow-up	2014	
15	Nigeria (Phase 2)	2015	
16	. Kenya (Phase 1)	2015	
17	Morocco (Phase 1)	2015	26. Sudan (Phase 1)
18	Bangladesh follow-up	2016	27. Philippines (Phase 1
19	Poland follow-up	2016	28. Ghana follow-up
20	. Kazakhstan (Phase 1)	2016	29. Egypt (Phase 2)
21.	Malaysia (Phase 1)	2016	30. Belarus (Phase 3)
22	. Ghana (Phase 1)	2017	31. Uzbekistan (Phase 2
23.	Niger (Phase 1)	2018	32. Kenya Follow-up (Ph
24	UAE (Phase 3)	2018	33. Uganda (Phase 1)
25.	Saudi Arabia (Phase 2)	2018	34. Sri Lanka (Phase 1)

2009

1. Jordan (Phase 1)

Results and Feedback from INIR Missions



 Feedback from the past INIR missions are published in TECDOCs. TECDOCs include the common observations in embarking countries in the development of nuclear power infrastructure.



15 INIR Mission Reports are publicly available in

https://www.iaea.org/services/review-missions/integrated-nuclear-infrastructure-review-inir

Common Challenges in Phase 1 (Source: 15 INIR Phase 1 Missions)

- Incomplete/outdated energy planning studies
- Lack of formal/approved national nuclear policy and strategy
- Inadequate assessment of necessary funding for infrastructure development
- Insufficient stakeholder involvement programmes, including lack for early surveys
- Poor planning for phase 2 activities as a longerterm planning
- Overall challenge in sustaining national position



Common Challenges in Phase 2 (Source: 11 INIR Phase 2 Missions)

- Incomplete policies and strategies to facilitate bidding and contracting (funding and financing, SFM and RWM, etc)
- Unclear ownership and contracting model
- Inadequate legal framework national and international
- Late establishment/designation and development of owner/operator organization
- Late establishment of independent Regulatory Body, insufficient funding and human resources for RB
- Incomplete management systems in RB and owner/operator

Common Challenges in Phase 3 (Source: 2 INIR Phase 3 Missions)

- Late approval of some policies and strategies
- Delayed completion of operating procedures
- Incomplete training of operating personnel and certification of key operating personnel
- Lagging competence of regulatory body
- Incomplete regulatory framework for operational stages



Common Good Practices in Phase 1 (Source: 15 INIR Phase 1 Missions)



- Strong support from the government for Phase 1 activities
- Establishment and functioning of NEPIO mechanism
- Early and active involvement of stakeholders including public

Common Good Practices in Phase 2 (Source: 11 INIR Phase 2 Missions)

- Clear HR programme to support recruiting and retaining qualified staff
- Active stakeholder programme
- National coordination of nuclear security issues
- Strong industrial involvement programme

Common Good Practices in Phase 3 (Source: 2 INIR Phase 3 Missions)

- Utilization of international peer review services to support the nuclear power infrastructure development
- Active engagement of RB with other regulatory bodies and international organizations in the area of regulatory practices



Thank you!





Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes

Mr George Appiah

- Research Scientist with the Nuclear Power Institute of the Ghana Atomic Energy Commission.
- Since 2014, Coordinator for Stakeholder and Industrial Involvement technical team for Ghana's Nuclear Power Programme.
- Support activities for the INIR and Follow-up Missions for the Ghana Programme and participated in several workshops and training programmes in Stakeholder Involvement and Nuclear communications organized by the IAEA.







Good Practice in the field of Stakeholder Involvement

George K. Appiah

Nuclear Power Institute

Date: 8th June, 2022

Venue: Virtual

NPID-127540-PRS-057

Content

- Why Stakeholder Involvement
- Stakeholder Involvement Requirements for Phase 1 & 2
- Categorization of Activities and Roles
- Guidance for Stakeholder Involvement
- Good Practice
- Concluding Remarks



Why Stakeholder Involvement?

NEED TO OBTAIN THE REQUIRED SOCIAL LICENCE FOR THE NUCLEAR POWER PROGRAMME AND PROJECT

Direction of desired results from stakeholder involvement



Stakeholder Involvement Requirements of Phase 1 & 2

PHASE 1 & 2 **Open and transparent stakeholder involvement programme** demonstrated by the implementation of a Stakeholder involvement strategy and plan, with the required resource and competence.

The public and other relevant interested parties must receive information about the benefits and risks of nuclear power, including the 'non-zero' potential for severe accidents.

Categorization of Activities and Roles 1

Categories	Activities		
1. Education & Awareness Creation	1.1 Quarterly focused group discussions/town ball	Categories	Activities
Objectives : Interacting & Improving Stakeholder Appreciation of the Need for Nuclear Power Programme in Ghana so as to enhance buy-in and secure a social license for the nuclear power project	meetings 1.2 School Outreach, Open Day, Debates, Quiz and Essay Competitions 1.3 Meetings with Stakeholders 1.4 Seminars, Workshops, Summits & Conferences	2. Communications Objectives: To enhance stakeholder knowledge on nuclear power through open and transparent dissemination of accurate information in the	 2.1 Media Workshops & Editors' Fora 2.2 Monthly Newsletters 2.3 Radio & TV Discussions & tit bits 2.4 Online & Social Med Presence 2.5 Press Releases 2.6 Establishment of
zation and Stakeholder	Support Centre (LSSC)	media	2.6 Establishment of Public Information

Public Relations and Information Centre (PRIC)

Centres



Categorization of Activities and Roles 2

 Training Objectives: To equip media personnel, nuclear power 	 1.1 Scientific Visits for selected media personnel, CSOs, advocacy groupings 1.2 Training for nuclear power communicators, CSOs, media and advocacy groupings groupings 	Categories	Activities
communicators, civil society organisations and all other advocacy groupings with tools and adequate information to enhance delivery of accurate and objective communication on Ghana's nuclear power programme		1. Monitoring & Evaluation Objectives: Conduct of surveys to measure perception, knowledge and interest of stakeholders in nuclear power programme Evaluate the conduct of stakeholder engagement activities	 1.1 Pilot Survey 1.2 Nationwide Survey 1.3 Dissemination of Survey Results 1.4 Developing & Adopting Tools to Respond to Feedback from Survey Results 1.5 Assessment prior and after engagement activities
		LSSC &	& PRIC

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Guidance for Stakeholder Involvement

TWO DOCUMENTS

STAKEHOLDER INVOLVEMENT STRATEGY

COMMUNICATION STRATEGY

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Important Guiding Principles of the Two Documents





Good Practice (1/10)

• Stakeholder Mapping

INT	EREST		
Low	High		
	National Commission for Civic Education		
	Security Services	_	
	Ghana Red Cross Society	_	
	Ghana Medical Association		
	House of Chiefs		
	Senior High Schools	- i	
Ghana Journalist Association	Neighbouring Countries	- 0	D
Ghana Independent Broadcasting Association	Regulatory Organizations	-	E E
National Media Commission	Teacher, Workers & Student Unions		D
Local Content & Local Participation Committee	Industry		S
Peace Council	Media		12
	Ministry of Env. Science, Tech. & Innovation		0
	Ministry of Energy	_	E E
	Ministry of Finance		
	Ministry of Information: Info. Serv. Dept.	- i =	
	Ministry of Justice & Attorney General	- 5	
SDG Implementation Coordinating Committee	Parliament Select Committees Inter-Party Advisory Committee		
Civil Society Organizations			
Ghana Bar Association	Leadership of Parliament		

Good Practice (2/10)

• Planning & Budgeting (Short, medium & long term plans)

Planning Involve all those who participate in the activities





Good Practice (3/10)

• Five Year Plan



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Good Practice (4/10)

- Determination of material issues in a three step approach.
 - 1. from mandates and backgrounds
 - 2. Pre-engagement surveys
 - 3. Evaluation of engagements

Editor's Fora for selected media practitioners

ON Ghana's Nuclear Journey Infrastructural Issues Addressed Social License The Important Role of the Media Engagements with the Association of Ghana Industries (AGI)

ON

The Economic Benefits of nuclear power Local content and related issues Assessing Local Industry Capability Criteria for Local Industry Assessment Nuclear Industry Interest Group Industry Support Programmes Local Content Policy for Nuclear Industry Engagements with the Ghana Institution of Engineering (GhIE)

ON Ghana's nuclear power journey/road map and current status Opportunities of the nuclear power programme The Ghana Institution of Engineering as Strategic partner Engagement with the Parliamentary Select Committees on Environment, Science, Technology & Innovation, and Energy

ON Ghana's nuclear power journey/status of the programme Support from successive government National position and the role of government

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Good Practice (5/10)

Engagement with African Centre for Energy Policy (ACEP)

ON

Ghana's limited hydro potential Variable nature of the renewable Economic competitiveness of nuclear Gas reserve depletion and increasing demand for power Need for emission control and climate responsibility Unmatched nuclear reliability & diversity Addressing public safety concerns Engagements with Ghana Grid Company (GRIDCo)

ON Nuclear power infrastructure issues Grid and an important infrastructure issue Grid studies required Grid studies for different capacity scenarios Engagement with the Ghana Journalists Association (GJA)

ON The approach Ghana's Nuclear Power Programme Submission of the Nuclear Programme Comprehensive Report (PCR) to Cabinet The PCR is Ghana's commitment-basis document for a knowledgeable commitment of government on the inclusion of nuclear energy in the country's energy mix Studies undertaken Engagement with Leadership of Ghana's Parliament

ON

Ghana's current energy mix The History/Journey of Ghana's Nuclear Power Programme The Role of Government The Structure of the GNPPO Required Parliamentary Support

Engagement with SDG 7 & 13 AND SDG 8 & 9 focused CSOs

ON The role of nuclear power in meeting the SDGs How nuclear power can contribute to global efforts at mitigating climate change Ghana's nuclear power programme and progress made Opportunities for local Industries and Job Creation Society of Volta River Authority Engineers (SOVRAE)

ON

Need for Resilience energy mix, Nuclear as a reliable baseload, Human Resource Requirements of Nuclear Power, Safety Issues, Needed Collaboration Engagements with selected journalists ON Ghana Nuclear Power Programme Delivering the Message and involving our Stakeholders Objectivity and accuracy in nuclear reportage Examples of articles with inaccuracies Tour of the GAEC facilities

Engagements with selected Senior High Schools

ON

The working principle of nuclear power Ghana's plans to add nuclear to its generation mix Nuclear power workforce requirement Opportunities for young scientists and engineers

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Good Practice (6/10)

Sharing of newsletters on the development of the 19 infrastructure issues with all stakeholders



GNPPO NEWSLETTER Vol 3. No. 3 March 2018

Study of USA's Electricity Market: Baseload Retirements, Nuclear Production Tax Credit and Lessons for Ghana

Background

The Rick Perry sanctioned study on United States' Electricity Market looked at the retire-





Vol 5. No. 002, February 2020

CLIMATE CHANGE MITIGATION: THE ROLE OF NUCLEAR POWER

BACKGROUND

Climate change issues is a major consideration in energy planning globally. The evidence tion of about 37 million by 2030. The country's industrial and economic ambitions are expected to cause electricity consumption to increase from the current average



Good Practice (7/10)

• Engagements must be proactive and not Reactive

• Engagement Rules

Avoid the use of Absolute words such as Never, All, very etc.
 during Risk communication – How you do your risk communication
 determines how well you can handle crisis communication

oAvoid confrontational responses



Good Practice (8/10)

- Keep record of engagements especially questions asked and responses that are given to them for consistency in messaging across key organizations.
- Spokespersons should be senior management persons who are on top of issues
- Ensuring Inclusivity
 - Involvement of relevant external stakeholders in the Conduct of studies, Review of documents etc

Good Practice (9/10)

- Monitoring and Evaluation
 - Evaluate each engagement activity to gauge the impact made and also help scope future engagements
 - Conduct regular surveys to determine the impact of the overall stakeholder Involvement
 - For the sake of credibility it is advisable to outsource such surveys to competent external stakeholders

Good Practice (10/10)



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Concluding Remarks

- Stakeholder Involvement must be carefully thought out, Planned and executed as it directly impacts on views, opinions and perceptions that affect public acceptance
- It must start early and be continuous in order to deliver effectively on scope, cost and schedule of the programme and project
- Things can go wrong irrespective of all the proper planning. Lessons must be learnt and effort must be made not to repeat mistakes
- Good practice must evolve from lessons learnt for future engagements



Thank you

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Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes



Poll Time

Which form of IAEA activities did you (or your colleagues) participate in the past?

- Regional or Interregional Training Course
- National Workshop
- E-Learnings
- IAEA peer review or advisory services
- Technical Meetings
- Webinars
- None of the above



Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes

Mr Mohammed Dwiddar

- Graduated from Alexandria University in 2005
- Obtained a Masters Degree and a PhD from Alexandria University in matters related to nuclear fuel cycle.
- Has been involved in the El-Dabaa Project since its very early stages as he was a member of the steering committee negotiating the Project Contracts.
- Once the Project Contracts became effective, he was appointed as First Deputy Project Manager and then in January 2021, he became the Project Manager for the El-Dabaa Nuclear Power Plant Project









Dr. Mohammed Saad Dwiddar

Project Manager of El-Dabaa NPP Project



- Assessment of national capabilities and plans to enhance them.
- The Egyptian National Localization Joint Committee.
- Good practice recorded in INIR mission report.
- Local participation targets for El-Dabaa NPP Project.

Background

 A national policy for local participation and technology transfer during the construction phase of the El-Dabaa NPP was prepared based on international practices and experience. In this regard, the percentage of local participation and technology transfer has been estimated in the BIS to be no less than 20% for the first unit and increases with every unit thereafter.

Background

- A survey of the Egyptian companies who have potential to participate in the El-Dabaa NPP project for the construction, supply of equipment and provision of supporting services was performed in 2010.
- A number of forums and meetings were held with such local companies to explore their capabilities and support them to participate in the El-Dabaa NPP.







Assessment of national capabilities and plans to enhance them.

- The Egyptian National Localization Joint Committee ("ENLC") has been established with the Russian Party in order to regulate matters related to local participation in the El-Dabaa NPP.
- An online website has also been created in order to register Egyptian companies to be involved in the El-Dabaa NPP with respect to construction and supply of equipment and materials. <u>https://nppa.gov.eg/jcl/</u>"
- The website is administered by the ENLC.



About Committee

In support of a country's industrial involvement, there needs to be a general infrastructural framework within which industries can operate. These supporting infrastructures have a direct influence on the response of national industries to the requirements of nuclear technology. The industrial sector cannot develop if there are not any qualified personnel to staff the necessary functions., Similarly, industry cannot operate without a legal framework that establishes regulations, directives, codes and standards, licensing, quality assurance and enforcement. In addition, communications and transport are vital to industry, as well as R&D infrastructures and a legal framework to regulate the whole sector.

Thus, The Joint committee of localization (JCL) with the Russian Party, has formed with Respect to Local Participation in the El-DABAA Nuclear Power Plant (NPP).



POWER PLAT



Read More



Assessment of national capabilities and plans to enhance them. The mission of the ENLC is as follows:

➤ To evaluate, encourage and support any potential localization by way of a centralized database, cooperation with the NPPA, conduct of surveys on large local companies, liaising with the EPC Contractor and exchanging information.





The objectives of the ENLC are as follows:

- Maximizing the value-added of the local components in the parts used in El-Dabaa NPP by 20-30% for the first and second units, and by 30-35% for the third and fourth units.
- Supporting the transfer of nuclear power technology.
- Enhancing the participation and involvement of stakeholders (Ministries, Governmental Authorities and Private Sector) with the Russian side.



The Joint Committee for Localization (JCL)

• According to the EPC Contract, the percentage of local participation was set at 20% for the first unit and increases to 35% for the fourth unit. The Joint Committee for Localisation ("JCL") was established by NPPA and the Russian party. The JCL approved these percentages and its main objective is to work towards the achievement of these targets. Rules for the local participation and annual work plans have been implemented since 2017.



- The Joint Committee for Localization (JCL)
 - Several seminars were held during the period from 2017 to mid-2019 to familiarize Egyptian companies with the technical requirements of the El-Dabaa NPP project.
 - Several technical review visits to companies have been arranged in preparation for their participation in the tenders of related to the El-Dabaa NPP project.
 - A list of Egyptian companies which may be involved in El-Dabaa NPP Project has been prepared.

Good practice recorded in INIR mission report



• **GP-18.1.1** NPPA is involved in a joint committee with the EPC Contractor that works actively in promoting, facilitating, planning and auditing the preparation of the national industry for the supply chain of the El-Dabaa NPP project. This committee facilitates the achievement of the localization targets.



Local Participation Targets for El-Dabaa NPP Project

The localization plan envisages that the Egyptian construction and heavy industry achieves a participation rate of 35% for unit 4 by 2029 and becoming a main supplier of spare parts during operation. Calculation of localization % in relation to the cost of Contract:

P POWER PLANT



Localization Streams for El-Dabaa NPP Project

In accordance with the Contractor's obligations with respect to the achievement of the local participation percentages for the El-Dabaa NPP Project, the following localization streams have been set in order to allocate the participation of Egyptian companies and subcontractors:





Thank You for your Attention



Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes



- Government
- Regulator
- Operator
- NEPIO: Nuclear Energy Programme Implementing Organization Technical Support Organization
- Non-Governmental Organization
- Academia
- Research Institution
- International Organization
- Media
- Private Sector-non-nuclear
- Nuclear Advocate /Independent Advocate
- Other
- I prefer not to say







Good Practices and Common Issues Identified through the Integrated Nuclear Infrastructure Review (INIR) in the Development of Nuclear Power Programmes

Q&A Session



Mehmet Ceyhan NIDS, IAEA



George Appiah GAEC, Ghana



Mohammed Dwiddar El-Dabaa NPP Project, Egypt







Human Resource Development

Quarter 4 2022

The materials under the current webinar series are available under https://www.iaea.org/topics /infrastructuredevelopment/webinarseries-on-nuclearinfrastructure-publicationupdates