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# **Localization and Industrial Involvement for the Construction of Jordan Nuclear Power Plant**

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# Introduction

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- ❑ Jordan has a vast experience in working with foreign companies in Jordan and abroad especially in civil construction
- ❑ The unique industry (nuclear) requirements are slightly different and highly regulated
- ❑ Most components' shelf life are 60 years and requires special QA manufacturing processes
- ❑ The fact that, at this time, only 2 units are planned to be built in Jordan makes establishing specific industries not feasible
- ❑ However, localization will boost the public acceptance for the NPP project

# Local Supply Chains Involvements

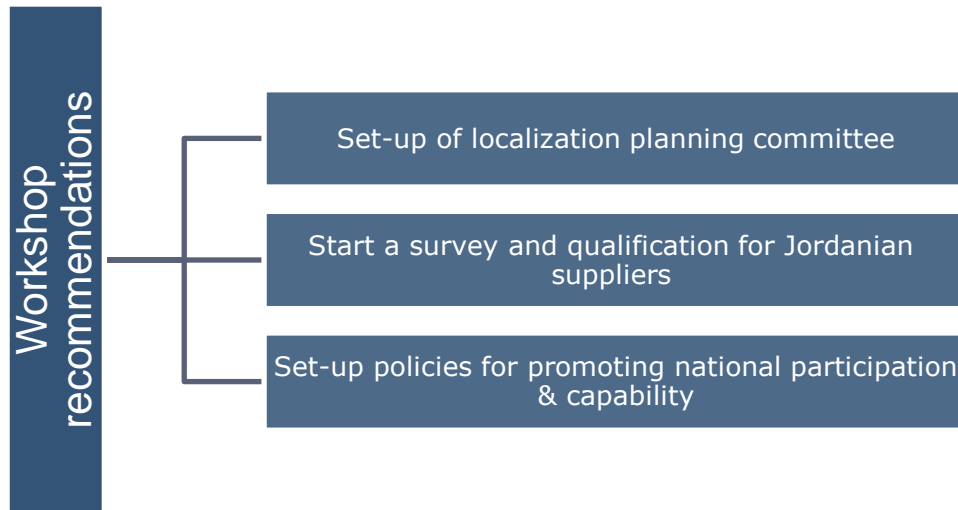
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The localization percentage has been set to be at a minimum of 20% in (BIS), (PDA) (IGA).

- This percentage will be set as a bottom target during negotiations for project EPC contract and during project implementation.
- This ambitious localization percentage could be achieved if proper local industry preparation takes place coupled with investment in industry upgrade which might be possible in the 2nd NPP unit.
- Local industry should compete in a commercial basis in terms of price and quality.
- Incentives and subsidies are difficult because of Jordan open trade policy and mutual agreements especially with neighboring countries.
- Dialogue between owner/operator /vendors should start before signature of the EPC contract with the vendor.

# Activities

- ❑ In 2013 JAEC hosted IAEA workshop for national participation
  - ❖ Government institutes and industry associations were invited
  - ❖ International countries experience and lessons learned were shared
  - ❖ 33 representatives from local industry and construction contractors participated



# Localization Planning Committee Members

**JAEC formed a national localization committee headed by JAEC, members from:**

- Related Ministries and government institutions
- Industry association (chambers of industry)
- Professional societies (Engineers, Contractors)
- R&D institutions

Government institutions	Non-Government institutions
Jordan Atomic Energy Commission	Jordan Chamber of Industry
Jordan Nuclear Power Company	Amman Chamber of Industry
Minister of Industry, Trade and Supplies	Jordan Engineers Association
Ministry of Public Works and Housing	Jordanian Constructions Contractors Association
Ministry of Energy and Minerals Recourses	King Abdullah II Design and Development Bureau (KADDB)
Ministry of Higher Education and Scientific Research	( Other institutes and experts as needed)
Ministry of Labor	
Jordan Armed Forces	
Jordan Standards and Metrology	



# Preparatory Steps

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- ❑ A macro-economic study has been conducted that indicated a threefold benefit to the local economy in terms of the localisation expenditure.
- ❑ Specification, quantities, construction materials, list of equipment, codes and standards were extracted from Bid documents to identify potential areas and opportunities for local industry.
- ❑ A general sorting of potential suppliers for NPP projects were completed.

# Expected Outcomes for the Survey

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After identifying the targeted local industrial and construction companies:

- The results will help the national localization committee for setting up the future localization policy and plans
- Eventually, several short lists of candidates should be established:
  1. suitable to supply without major upgrades
  2. required major upgrades to be classified as “qualified suppliers”
- Cost for upgrading should be agreed upon according to localization policy
- Assess the capabilities of site communities to promote local economic involvement in the programme during its various phases.

# Survey and Qualification Forms for Jordan NPP Suppliers

In 2015, JAEC started a survey and qualification activity for Jordanian suppliers for the NPP project:

- Industry, commerce, and services sectors
- Construction contractors sector

The survey forms were uploaded to:

- JAEC web site (<http://www.jaec.gov.jo/> )
- Ministry of Industry, Trade and Supply (<http://www.mit.gov.jo/> )
- Jordan construction contractors association web site (<http://www.jcca.org.jo/>)
- Amman chamber of industry web site (<http://www.aci.org.jo/>)
- Advertise on daily newspapers
- Forms are also sent by e-mail



# Draft National Policy for localization and industrial involvement in NPP project

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- Local participation should not affect the cost of the project, work schedule, delivery, quality or safety.
- The main supplier is solely responsible for delivery dates, quality, safety and compliance requirements of regulatory bodies.
- Encourage local suppliers to enter into partnerships and cooperation with similar suppliers from the major supplier country or other countries in the region.
- Give priority to contractors and local suppliers in case of ascertaining the quality required and the possibility of completion of work, delivery, quantities and specifications required.

# Draft National Policy (2)

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- Encourage the development of local suppliers taking into consideration the expected cost, benefit and volume of future work
- Working with the main supplier to transfer the technology, expertise, skills and training of local suppliers, including intellectual property rights of using information and licenses
- To establish and maintain a data base of information for capabilities of local suppliers and provide those information on demand
- Encourage the cooperation between vendor, owner and local suppliers to manage the local participation processes and develop quality and safety procedures to meet vendor requirements

# Draft National Policy (3)

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- The main supplier should help in identifying
  - requirements in terms of quality , management,
  - introducing new systems and develop the available ones
  - help reduce the cost of manufacturing and
  - estimating the cost to make the required upgrades
  
- Establishing a management system in the project company to:-
  - Cooperating between vendor and local suppliers
  - Work to develop the quality and safety procedures and meet requirements of the main supplier and
  - Classification of supplies to local or joint or external origin
  
- Encouraging the cooperation of industrial companies with R&D centers and universities to develop their products

# Draft National Policy (4)

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- Giving priority to the Jordanian worker provided that the percentage of the Jordanian worker is not less than 50%
- Prioritize suppliers and workers from areas adjacent to the site of the nuclear plant project
- Use a specific type of nuclear reactor technology as possible to accumulate knowledge and adapt to the requirements of the project and specifications required
- Adopting the principle of open and competitive bidding between local suppliers

# Draft National Policy (5)

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- Working during the construction phase to develop
  - necessary plans to provide the needed supplies in the stages of operation, maintenance
  - records of design changes during construction and modifications during operation “Design Authority”
- Encourage the establishment of an association for local & regional suppliers to the nuclear plant as a platform for cooperation and exchange of experiences
- Promoting nuclear safety culture and quality control of local suppliers



# Some Localization Opportunities

Construction works	Local Industries	Services and others
Civil, electrical and mechanical construction	Cement, Concrete	Engineering design and supervision
Site preparation & excavation	Industrial grade tanks and heat Exchangers	Consultations and studies
Road works and asphalt mixtures	Building chemicals, adhesives and additives	Transportation, Cranes, handling and logistics
Concrete works	Insulating materials	Field inspection
Start-up material such as sand, gravel and others	paints and pastes	Qualified labour force in the construction field
Carpentry, steel and aluminum works	Electrical wires and cables, lighting systems	
Finishing and decoration works	General safety and fire fighting	
Tests for construction materials and quality control	Works of ventilation, air conditioning	
Non-distractive testing	Pipes and air ducts	

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# Thank You

