Algeria, Localization and Related Activities

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OUTLINE

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– INDUSTRIAL INVOLVEMENT AND TECHNOLOGY TRANSFER
– LOCAL INDUSTRY PARTICIPATION
– INDUSTRIAL INVOLVEMENT EVALUATION
Country Profile
Focal Points

- Population : ~ 40 millions; Urban population: 65%
- Area : ~ 2.4 million sq km; 84% are Sahara desert;
- Coast line: 1265 Km
- GDP : ~ 208 billions US$
- Natural Resources : Gas, petroleum, phosphates, Fe, Pb, Zn, U, ...
- Industries & Manufacturing: steel, cement, chemical, mechanical, electrical, automotive industries; Precision machining, … etc
Algerian territory: Three distinctive parts

**Littoral:**
band extending East-Ouest along the mediterranean coast limited on the south by the Tellian Atlas mountain chain.

**Hauts Plateaux:**
High altitude band. Extends East-West. Limited on the south by Saharian mountain chain.
Semi Arid climate.

**Sahara**
Arid and Hot climate.
Strong Concentration in the northern part and particularly in coastal regions (61% of population).
Energy Consumption by Type

- Petroleum Products: 41%
- Petrochemicals: 7%
- Other types: 1%
- Electricity: 11%
- Gas products: 40%
To alleviate fresh water shortage, Algeria is boosting its sea water desalination capacity.

Several projects are ongoing (unit size: 200 – 500 m3/day)
At present, Algeria doesn’t have Nuclear Power Plants; the country operates however the following nuclear installations:

• Draria nuclear complex:
  – NUR reactor: 1MW, Used for training and research in reactor engineering.

• Birine nuclear complex:
  – Es-Salem reactor: 15 MW, Used for isotope production & Materials testing.
  – Nuclear fuel and material testing facility: in-pile test loops, and a hot cell complex for post-irradiation examination of power and research reactor fuel elements,
TECHNOLOGY TRANSFER & INDUSTRIAL INVOLVEMENT
The erection of a Nuclear Power Program involves an extensive transfer of technology.

Such a transfer is essential to:

– economically and safely operate the plant,
– develop a minimum capability of technological backup for the plant
– Initiate/accelerate diversified industrial development.
The transfer of technology is a complex process with many facets, options and constraints. It is generally considered at 3 consecutive levels:

- **Training of manpower** (preparation of highly skilled, well trained and reliable professionals, at all levels, to successfully implement the project and operate the commercial nuclear power plant in a safe and efficient manner),

- **Local participation in engineering and management services** to maximize knowledge transfer and optimize local industrial involvement,

- **Local participation in terms of supply of materials, manufacturing of components, construction and erection** to promote self reliance in a cost effective manner.
What is needed from the Industry?

- The first NPP is constructed with very limited local industrial involvement;
- A long term Nuclear Power Program needs strong local industry involvement and technology transfer;

- Studies have to be performed in early stage to determine:
  - local capabilities
  - national participation
What is needed from the Industry?

For a typical Generation III NPP (construction and maintenance), Nuclear manufacturer supplies:

- Concrete: \(~6\,000\) m\(^3\)
- Steel: \(~61\,000\) t
- Forgings: \(~4\,000\) t
- Pumps: \(~200\)
- Valves: \(>5\,000\)
- Pipes: \(~210\) km
- Cables: \(>2\,000\) km
- Welds: \(>50\,000\)

High quality is required: ‘nuclear-grade’ components
Local industry participation:

• Consider the creation of a local supply chain;
• Needs to consider local procurement from early stage and see potential local industry participation;
• Establishment of a database of local companies;
• Identify possible upgrading plans;
• Improve product qualification practices “harmonization” to meet regulatory requirements;
• …..
Industrial Involvement Evaluation

- Meeting held with industrial companies “Futur suppliers” to explain standards and qualifications required and see to what extent they can be involved.

- A survey of local suppliers with the potential to supply equipment or services supporting nuclear power plant construction, maintenance and/or operation (national origin consumables and spare parts);

**Output:** summary of local industries capable of participating in both nuclear and non-nuclear safety related construction or support services activities with any required actions and funding requirements.
THANK YOU