

# **Human Resource Development for Nuclear Power Programme in Uganda**

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- The electricity supply in Uganda is largely from hydro power, biomass and oil with a total installed capacity of 882.84MW by both private and public companies for domestic and industrial use.
- Draught in the region causes fluctuations in the water levels of the Nile system with key hydropower sites thus making the hydro power generation unreliable.
- Although the actual generation of 550MW is slightly above the peak power demand of about 489MW, the growth in power demand estimated at 15%, will surpass the existing generation.

- In addition, 85% of the population have no access to electricity and it is estimated that Uganda will require 41, 738 MW by 2040 thus increasing its electricity per capita consumption to 3,668 kWh.
- By the end of 2013, a total of 882.84MW electricity generations have been installed. Of which 630MW is largely hydropower (Nalubaale, Kiira and bujagali), 65.84MW is mini – hydro power, 51 MW is co-generation and 136MW oil fired plants.
- The central location of Uganda in the African region encourages sharing of energy infrastructure thus potential exporter of electricity.

The growth in electricity demand coupled with 85% of the population who do not have access to electricity calls for development of environmentally friendly generation capacities.

To achieve the Uganda Vision 2040 targets of universal access to electricity, generation capacity of 41, 738 MW and per capita consumption to 3,668 kWh, Uganda will develop and generate modern energy to drive the industry and services sectors.

However, the generation potential from hydro, biomass, geothermal and peat, if fully developed, cannot meet the Uganda Vision 2040 targets.

Therefore, to reduce the energy deficit, emphasis is being put on the development of nuclear power.

## **Policy, Legal and institutional framework for Nuclear Power Development**

1. Uganda Vision 2040. National
2. Development Plan (2010/11 - 2014/15)
3. Energy Policy for Uganda  
Atomic Energy Act, 2008
4. Nuclear Power Roadmap Development Strategy 2013/14 – 2015/16

# Human Resource Development

Currently, Nuclear Energy Unit has seven staff who have undertaken specialized training in nuclear power related field. However, the number of staff is still inadequate to effectively implement NEU mandate. Therefore there is need to recruit and train more staff.

Table 1. Below show number of staff trained.

No	Field	Number of staff trained	Status
1	Nuclear Science and Technology	2	Completed
2	Nuclear and Quantum Engineering	1	Completed
3	International Nuclear Law and Policy	1	Completed
4	Nuclear Engineering	3	Completed
	Total	7	

# Human Resource Development

In the near term, Ministry of Energy and Mineral Development is sending a key staff abroad to undertake specialized training in nuclear related fields.

The medium term strategy is to assess human resource needs for safety regulation and operation of nuclear installations and also assess capability of public universities in the country to conduct nuclear related trainings.

In the long term, relevant nuclear training programmes will be established in local tertiary institutions

# Challenges

- i. Inadequate funding
- ii. Lack of nuclear training programmes in local institutions/universities.
- iii. Limited motivation for nationals to pursue nuclear related field.
- iv. Retention of the staff by the Unit since they are quite competitive in the world market.
- v. Limited public awareness about nuclear related issues in the country.



# Interventions

- Scholarship for Long term training in nuclear related field
- Nuclear activities are provided for within the Government Medium Term Expenditure Framework.
- Assessment of Human resource needs and capability of national tertiary institutions to conduct nuclear energy related training.
- Career seminars being conducted in tertiary institutions.
- Awareness campaign such as launch of Country Programme Framework between Government of Uganda and IAEA during Joint Sector Review.
- Study tours for Working Group members to countries with active nuclear power programmes

# Conclusions

Despite the effort by the Government to ensure reliable and available access to electricity which is crucial to the socio – economic development, the use of hydro power, biomass and oil, geothermal and peat alone would not meet the target of the vision 2040. There is need to identifies nuclear energy as a potential option for meeting the energy deficit.

Development of nuclear energy for power generation needs decision making, preparation and preparatory work which involve human resource development process, strengthening the legislation and regulatory framework, stakeholders' involvement and public acceptance campaign.