



NIGERIA ATOMIC ENERGY COMMISSION (NAEC), ABUJA

(Established by Act 46 of 1976)

**COMMUNIQUE OF THE FOUR-DAY NATIONAL WORKSHOP ON
EDUCATION AND TRAINING TO SUPPORT THE INTRODUCTION OF
NUCLEAR POWER IN NIGERIA ORGANIZED BY THE NIGERIA ATOMIC
ENERGY COMMISSION IN PARTNERSHIP WITH THE INTERNATIONAL
ATOMIC ENERGY AGENCY ON THE THEME: "MANPOWER TRAINING
AND CAPACITY BUILDING FOR A SUSTAINABLE NUCLEAR POWER
PROGRAMME" WHICH HELD AT THE TRANSCORP HILTON HOTEL IN
ABUJA, FROM JUNE 24 TO 27, 2008.**

As part of its mandate to steer the national effort to introduce nuclear power for electricity generation in the country, the Nigeria Atomic Energy Commission (NAEC), in partnership with the International Atomic Energy Agency (IAEA), organized a four-day National Workshop on Education and Training to Support the Introduction of Nuclear Power in Nigeria held in Abuja, from June 24 to 27, 2008.

2. The aim of the workshop with the theme **"Manpower training and capacity building for a sustainable nuclear power programme"** was to properly fine-tune the national strategy for the implementation of these training programmes so as to position Nigeria to put in place a strong foundation for the training of the critical mass of manpower needed to implement a successful nuclear power programme. Thus, the primary objective of the workshop was to develop the basis and mechanism for laying the foundation for the training of the manpower needed to implement the national nuclear roadmap, with an emphasis for the timely deployment of nuclear power plants for electricity generation in the country.

3. The workshop was attended by leading professionals, senior academics and researchers from the core stakeholder institutions involved in the implementation of the national nuclear energy programme, the National Universities Commission, the National Board for Technical Education, delegates from eleven designated higher institutions for the training of nuclear scientists and engineers, Nigerian nuclear scientists and engineers in the diaspora, and experts from the IAEA, among others.

4. The workshop was opened under the chairmanship of the Honourable Minister of Education, Dr. Igwe Aja Nwachukwu, who was represented by a Director in the Ministry. The chairman, in his opening remarks expressed government's commitment to strengthen and properly position the national training institutions to produce an adequate and elite core of professionals who would effectively participate in the nuclear industry such that Nigeria could optimally benefit from the many applications of nuclear technology including the generation of electricity from nuclear power plants.

5. The workshop was declared open by the Secretary to the Government of the Federation, Ambassador Babagana Kingibe, who was represented by the Permanent Secretary, General Services Office, Ambassador (Dr.) Hakeem Baba Ahmed. In his keynote lecture entitled "**The Relevance of Nuclear Power in the Assurance of Long-term National Energy Security**", the Secretary to the Government of the Federation reiterated the urgent and strong need for Nigeria to increase, as well as diversify her electricity generation base beyond the current traditional sources of oil, gas and hydro to include nuclear, coal and the renewable sources of energy, in order to get out from the current energy crisis the country is enmeshed in, stating further that only such a pragmatic approach will guarantee national energy security in the long-term

6. In her welcome address, the Honourable Minister of Science and Technology, Chief (Mrs.) Grace Ekpiwhre, who was represented by the Honourable Minister of State for Science and Technology, Dr. Alhassan Bako Zaku, restated the commitment of the Federal Government to implement a streamlined nuclear power programme. This she stated was affirmed by the approval of the national nuclear roadmap by the Federal Executive Council and the subsequent activation of the implementation of the national nuclear electricity programme. She further stated that the programme will be executed in partnership with the private sector, where government's major focus would be directed at building the requisite manpower and infrastructure base to create an enabling environment for the programme to take roots in the country. Noting the pivotal role an efficient, experienced and well trained professional workforce would play in the success of the programme, the Honourable Minister further enjoined the participants to be focused in their deliberations to lay a solid foundation for growing the needed human resource base.

7. The Honourable Minister of State for Energy (Power), Hajia Fatima Balarabe Ibrahim, in her remarks, reiterated the efforts of the Federal Government to effectively tackle the current energy crisis. She further affirmed the commitment of Mr. President, Alhaji Umar Musa Yar'Adua, *GCFR* to intensify the on-going reforms in the power sector in line with the

energy infrastructure development component of his Seven-Point-Agenda for the sustainable development of the country.

8. The Chairman of the House Committee on Science and Technology, Honourable James Baitachi, in his remarks, reiterated the interest of the Legislature in the national nuclear energy programme, and affirmed the commitment of the legislators to ensuring long-term funding for the implementation of the various components of the programme.

9. In his remarks, Dr. Tom Mazour, an expert and resource person from the IAEA expressed the continuous commitment of the IAEA to ensuring that developing countries are properly guided in their effort to introduce nuclear power to their energy mix. He further reiterated the fact that implementation of a nuclear power programme is a long-term project, and it is necessary that a country must show the political commitment and technical preparedness to implement it in a sustainable manner. He also informed that various forms of assistance are available from the agency; both in terms of technical publications and Assistance through the Technical Cooperation Programme, and hoped that this workshop would further move Nigeria forward in implementing its programme.

10. The Director-General of the Commission, Dr. F. Erepamo Osaisai, in his vote of thanks, expressed the appreciation of NAEC to the dignitaries who have come in good numbers to grace the occasion. He also thanked the IAEA for its continued support and partnership with the NAEC. He stated that Nigerians salute the courage and determination of the Federal Government to harness atomic energy for their socioeconomic development, and further challenged the participants to brace up for the long journey to achieve this objective. He further noted that the generation of electricity from nuclear power plants in Nigeria is an idea that has come to stay, and that it has graduated from a mere national development objective to the stage of implementation of an articulated plan, and that the large, broad-based participation in this workshop is an affirmation of the national interest in the project.

11. The proceedings of the workshop entailed technical presentations and in-depth sectoral group discussions. Various technical presentations in the broad fields of Manpower requirement for the implementation of a nuclear power programme; Models and modes of training of nuclear technology professionals; Curriculum development for programmes in nuclear science and technology in the higher institutions; Infrastructure and physical facilities requirements for the implementation of a nuclear power programme; Identification and creation of appropriate local and international linkages to support the introduction of nuclear power; Safety, Security,

Emergency planning; as well as Lessons learned in Nuclear Power Projects Planning and Management elsewhere, were also made.

12. At the end of the workshop, participants resolved as follows:
 - i. Thanked the Federal Government for its commitment to implementing a streamlined nuclear power programme for the socio-economic development of the country, particularly, by approving the national nuclear roadmap for the deployment of nuclear power plants for the generation of electricity, and taking on the primary responsibility for manpower training and infrastructure development.
 - ii. Recognized the fact that the building of a critical mass of trained and experienced manpower is contingent on laying a solid foundation for the training of the needed nuclear technology and allied professionals and technicians in our national institutions for the implementation of the programme, and is paramount for ensuring sustainability due to the eventual development of local expertise as well as strengthening capacity building structures within the educational institutions.
 - iii. Urged all the designated participating educational institutions to show commitment to the timely development and introduction of the requisite training programmes with the pertinent approvals in line with recommendations of the workshop.
 - iv. Expressed the hope that there would be a long-term commitment to adequate funding from the government to implement the training programmes in designated institutions, as well as develop the needed physical and educational infrastructure to sustain the programmes.
13. Desirous of moving the process of implementing a streamlined human resources development programme for the successful execution of the national nuclear power programme, and in order to achieve the set objectives of the programme within the specified timeframe of the roadmap, the participants made the following recommendations:
 - i. That noting, the success of a manpower training programme will depend largely on a proper understanding of the requirements of the job environment, the training objectives of the national nuclear technology education programmes should be focused at producing qualified personnel for the operations of the nuclear power industry.
 - ii. That success in this effort will entail the deployment of a multi-pronged training scheme which will include formal education in universities and polytechnics; on-the-job training; facility-specific-training provided by reactor vendor organizations; direct participation during project implementation; partnerships with experienced power utility organizations for initial operation of power plants; among others.

- iii. That the initial phase of the national training programme to support the introduction of nuclear power will entail a number of options which includes the following:
- ✚ enriching the content of existing programmes in the physical sciences and engineering with fundamental subjects in nuclear science and technology by imbedding core courses in nuclear science and engineering in these programmes;
 - ✚ in disciplines where possible, develop double major programmes in which nuclear science and engineering is the second major component;
 - ✚ as far as resources can sustain and based upon need, introduce appropriate undergraduate and graduate degree programmes in nuclear science and engineering;
 - ✚ enter into appropriate Memorandum of Understanding (MOU) with local and off-shore institutions for partnerships in developing programmes at the graduate level for the training of academics and researchers; and
 - ✚ a very practical way of generating the much needed faculty personnel to teach the new courses in nuclear science and engineering would entail mounting refresher training programmes in partnership with off-shore institutions to retrain mature and experienced faculty in other physical science and engineering disciplines in the core subject areas of nuclear science and engineering.
- iv. That training of nuclear scientists and engineers is capital intensive, as such, there must be a minimum level of physical facilities such as laboratories, workshops and IT facilities, and that establishment of programmes in the various designated institutions must be backed up with the attendant facilities.
- v. That as much as possible, NAEC should develop a network for the sharing of physical facilities and personnel between participating institutions in the training programme.
- vi. That the three national nuclear energy research centres; namely, Centre for Energy Research and Development (CERD), OAU, Ile-Ife; Centre for Energy Research and Training (CERT), ABU, Zaria and Nuclear Technology Centre (NTC), SHESTCO, Sheda-Abuja must be equipped with the relevant research facilities and infrastructure to provide the needed backbone for the implementation of the national training programmes. This will entail the maintaining and upgrading of the existing facilities, as well as the provision of new key functional physical facilities and laboratories in relevant areas of nuclear

- technology to sustain quality research for nuclear technology development in the country.
- vii. That NAEC should as a matter of policy, encourage the participation of Nigerian professionals in the Diaspora, and if need be, create appropriate institutional linkages for their effective involvement in the implementation of the National Nuclear Energy Programme.
 - viii. That a realistic database of strategic materials needed as inputs for the design and operation of the nuclear power industry be developed; this would be achieved by liaising with all relevant stakeholder agencies and institutions, as well as carry out a proper national survey of available raw materials (nuclear fuel, chemicals, and other process and structural materials) essential for the successful implementation of the programme. A suitable structure for this database would be the IAEA's Publication "Milestones in the Development of a National Infrastructure for Nuclear Power".
 - ix. That opportunities be provided through institutional linkages and bilateral cooperation for the training of suitably qualified and experienced personnel in the various technical and allied fields in the sector to stimulate and enhance indigenous participation in the nuclear power industry.
 - x. That in view of the unique and specialized training requirements for key professionals and technicians in nuclear science and technology, and in order to retain existing staff and attract quality professionals to the sector, it is desirable to create special service conditions, including the provision for a special remuneration package for nuclear professionals and technicians.
 - xi. That the successful and sustainable implementation of a national nuclear power programme should be imbued with utmost openness and transparency and must be anchored on a culture of nuclear safety, nuclear security and safeguard of facilities in conformity with international norms and standards.
 - xii. That public information and consultation are essential components of the process of preparing the citizenry for the introduction of nuclear power, and should therefore be pursued with vigour to ensure public confidence in the national nuclear power programme.

**SIGNED:
BY MANAGEMENT**

DATED THIS 27TH DAY OF JUNE, 2008