



BACKGROUND

Tanzania Atomic Energy Commission (TAEC) Tanzania Atomic Energy Commission evolved from the National Radiation Commission (NRC) which was established in the year 1983 by the Protection from Radiation Act No.5 of 1983. The major mandate of the NRC was to control the use of ionizing radiation in Tanzania which was basically on medical applications. Realization of the need for effective control of the peaceful use of radiation sources, consistent with International standards IAEA BSS and the promotion of application of Nuclear Technology, the Atomic Energy Act No. 7 of 2003 established the Tanzania Atomic Energy Commission (TAEC). The Commission has three major mandates of which are (i) to regulate the peaceful uses of nuclear technology, (ii) to promote the peaceful applications of nuclear technology and atomic energy; and (iii) to advise the Government on matters pertaining to the International Atomic Energy Agency (IAEA) and all the entailing conventions and agreements on nuclear and atomic energy. Since its inception and subsequently TAEC has achieved the following:

Regulation of the use of nuclear technology to ensure radiation protection and safety.

Various regulatory infrastructures developed to ensure radiation safety and nuclear technology. Appropriate laboratories established in the designated administration building at the Commission to meet the existing regulatory needs.

Internal and external links established to ensure effective performance of the Commission.

Internal cooperation established to ensure adaptation of up to date nuclear technologies.

Capacity building in terms of skills capacity development realized.

Besides all these achievements there have been a number of challenges that requested for transformations and these includes:

New and emerging use of nuclear technologies.

New and emerging national needs and requirements,

Emerging of international requirements of the use of technology.

Insufficient resources in term of expertise capacity in terms of human resources, equipment and financial resources TAEC Institutional Transformation Programme TAEC with an expanded mandate took over from NRC and made some achievements over the last 20 years under a more strengthened legislation.

However, the achievements in terms of Licensing, Inspection and Radiation Protection services need further intensification and consolidation in order to ensure adequate control of occupational, medical and public exposure to radiation while minimizing the possibility of radiation hazards. On the other hand, the coordination and facilitation of nuclear technology and atomic energy utilization through the established networks with government authorities, international, regional and local institutions require expansion and consolidation in order to maximize the peaceful and safe utilization of nuclear technology, thus impacting on the social economic development of the country. The Commission has to take into consideration the current social and economic policies of the government and position itself and its business in the evolving and globalizing socioeconomic setting so that it can sustainably contribute to the attainment of the Country's Vision, goals and objectives.

In the year 2005, a decision was made by the Government of URT to categorize TAEC as a Research and Development public institution under the Ministry with the portfolio for Science and Technology. With this shift, new challenges were experienced in implementing the first Strategic Plan (SP I) and the new and emerging issues such as exploration and the mining of uranium which necessitates the need for the Commission to look inward and see if the conditions and functions prevailing now could enable her to meet the mandated responsibilities while maintaining itself as a Research and Development Institution. In view of this, the Commission is determined to achieve the following within the coming twenty rolling years (2013-2033):

i. To become the Commission that is spearheading Research and Development in nuclear science and technologies application, development, adaptation and dissemination in the United Republic of Tanzania;

ii. To have highly qualified staff who can compete with other experts internationally;

iii. To have the best and state of the art laboratory in the region of Africa and worldwide;

iv. To Lead in Nuclear Technology applications and support other institutions within Tanzania, Africa and internationally;

- v. To have the best system of operation that can compete locally, regionally and internationally;
- vi. To sustain itself and run its activities through internally generated funds, thus reduce dependence from the government funding.
- vii. To become an output oriented institution which can have the maximum possible contribution to the nation; and
- viii. To have high and strong ties with its key stakeholders comprising of academia, R & D institutions, Government Organs and Institutions and Users of the Nuclear Technology. Mandates and functions of the Commission As per section 5 (1) of the Atomic Energy Act No. 7 of 2003, the mandate of TAEC is to provide regulatory and radiation protection services; and to co-ordinate, facilitate or advise on, the transfer and safe peaceful utilization of nuclear technology and atomic energy. More specifically, TAEC is charged with the functions related to the control of the use of ionizing and non ionizing radiation sources, the promotion of safe, and peaceful use of nuclear technology and atomic energy; and to advise the government on the implementation of international conventions related to this technology.

The functions of TAEC as given in section 6(1) of the Atomic Energy Act No. 7 of 2003 can be categorized into four groups as outlined in subsections 1.3.1 to 1.3.4. The General TAEC mandatory function (a) TAEC is responsible for all matters relating to the safe and peaceful use of atomic energy and nuclear technology in order to ensure the promotion of their applications and the protection of workers, patients and the general public from harmful effects of radiation; (b) The formulation and implementation of programmes for the training of persons to become qualified experts in various nuclear technology applications; (c) Establishing any facility, plant or equipment that is deemed useful in carrying out its authorized functions and to formulate strategies for resources mobilization. (d) Carrying out anything or enter into any transaction which in the opinion of the Commission is set to facilitate proper execution of its functions.

TAEC Advisory Function (a) Advise the Government of the United Republic of Tanzania on policy issues and provide information on currently available knowledge on the proper, safe and peaceful uses of atomic energy and radiation sources. (b) Establish in consultation with competent local and international bodies standards of safety for the protection of health and the minimization of danger to life and property and to provide for the application of these standards in all undertakings or practices involving the use of atomic energy and radiation sources; (c) Advise the Government of United Republic of Tanzania on the administration of the International Atomic Energy Agency Nuclear Safeguards Agreements and other related International Nuclear Agreements, Protocols, Conventions and Treaties; and (d) Establish, promote or adopt guidelines upon which its regulatory actions will be based.

TAEC Regulatory Function (a) Establish and operationalize a system for the control and authorization through registration and licensing of the importation, exportation, movement, possession or use of atomic energy and radiation sources; (b) Review submissions on safety programmes from the operators both prior to authorizations and periodically during operation as required; (c) Provide procedures for issuing, amending, suspending or revoking authorizations subject to any necessary conditions, that are clear and unambiguous and which shall specify the necessary elements as may be provided for in the

regulations; (d) Carryout regulatory inspections and ensure that corrective actions are taken if unsafe or potentially unsafe conditions occur or are detected; (e) Take the necessary enforcement actions in the event of violations of safety requirements, which include the termination and/or suspension of any practice involving radiation services or closure of radiation Premises; (f) Exercise regulatory control over all matters relating to non ionizing radiation; (g) Establish and/or facilitate the establishment and operation of a system for the control of radioactivity in foodstuffs, animal feeds and the environment; and for the management of radioactive waste emanating from various atomic energy and nuclear technology applications; (h) Formulate and operate a national radiological emergency and preparedness plan; and (i) Monitor any radiation practices or inspect radiation premises and where there is a breach of safety standards, order the termination/suspension of such a practices or closure of the premise or take such action like locking the Premises.

TAEC function relating to Promotion of Nuclear technology (a) Co-ordinate and provide for or facilitate the carrying out, through the establishment or designation of institutions, the development or practical applications of atomic energy and nuclear technology for safe and peaceful purposes, including the power generation using nuclear technology, with due consideration of the safety and needs of the nation; (b) Prioritize and provide for, or facilitate and co-ordinate the use of applied research designed to facilitate the evaluation, development or practical applications of atomic energy and radiation sources for safe and peaceful purposes, and of the modern methods for the control and minimization of the harmful effects of radiation exposure to workers, patients, the public generally and the environment; (c) Establish and operate a system for the registration of, and the dissemination of information relating to research findings under the Act and to promote the practical applications of those findings for the purposes of advancing the peaceful and more advantageous use of atomic energy and radiation sources in the United Republic, and the effectual protection of workers, patients, the public and the environment from radiation harm; (d) Hold and/or organize seminars, workshops or short training courses including public education for the safe and peaceful uses of atomic energy and nuclear technology; (e) Promote national and international co-operation or collaboration on the applications of and nuclear technology already introduced or intended for introduction in the United Republic of Tanzania.; (f) Liaise with ministries and appropriate institutions in order to facilitate the incorporation into the syllabi of all relevant and appropriate knowledge in nuclear science and technology for the practical applications of atomic energy and the related safety and protection during utilization; and (g) Foster and facilitate the exchange of scientific and technical information, and the training of scientists and experts in the field of peaceful uses of atomic energy, nuclear technology, radiation protection, nuclear safety and security as well as radioactive waste management. Services rendered The Commission regulates both ionizing and non ionizing radiation practices and also provides a wide range of nuclear technology applications related services to various stakeholders.

Major services which can be provided by the Commission are as follows:- Radiation Safety Inspections: The Commission carries out, on regular bases inspections in radiation workplaces to ensure the safe use of radiation sources. This source is mandatory in order to protect workers, public and environment Radioanalytical services and Radioactive waste management: TAEC has laboratories for Gamma spectrometry, alpha spectrometry and X-Ray Fluorescence, which support its regulatory functions by

measuring radioactivity and other elements in foodstuffs and environmental materials. Furthermore radioactive materials, of which their useful life is over, are collected from various institutions, conditioned and safely stored in the TAEC Central Radioactive Waste Management Facility (CRWMF). Such facility can also be used for research, consultancy and services locally or internationally. Dosimetry and calibration services: Personnel dose monitoring services are provided to occupationally exposed radiation workers, in order to assess radiation exposures. Ionizing radiation measuring equipments are calibrated, not only to our local stakeholders but also for the neighboring countries.

Repair and Preventive Maintenance Services: The Commission provides repair and preventive maintenance of nuclear equipment and instruments and the related electronic systems. The services are made available to stakeholders countrywide particularly for nuclear medical equipment and x-ray machines. Also consultancy services are offered to clients in this field. Training: To ensure effective delivery of nuclear technology services TAEC provides trainings in a wide range of fields and target groups including Radiation Protection to workers in nuclear installations, application of ICT in research/academic institutions, radiation hazards to the public and environment and many others etc. TAEC will need to develop strategic training activities in order to build training competence in the field both internally and externally especially given the current globalised economy to execute its statutory mandate.