

Statement delivered by H.E. Ambassador Marcel Biato,
Permanent Representative of Brasil

Mr. Chair,

This Conference is a watershed event in the field nuclear science. For the first time, high-level representatives from across the globe are coming together to highlight the transformations brought about by nuclear applications in agriculture, medicine, industry, and other fields of great social impact. We are all too aware of the destructive power of nuclear weapons, but seldom do we hear of the silent revolution made possible by the peaceful use of the atom. We are here gathered to address the challenge of harnessing nuclear technology to the benefit of the vast majority of the world's population.

Chair,

The Brazilian Nuclear Program is a wide-ranging endeavour covering research, development and innovation in all branches of nuclear science and technology. Our national institutions foster scientific research and technological development, and provide expert technical support in the area. Our guiding principle is to contribute directly to expanding the use of the innumerable applications of nuclear technology, in a safe and secure manner that will help improve the quality of life in our country, our region and the world.

As stated by DG Amano in his opening statement, the Technical Cooperation (TC) Programme is a core activity of the International Atomic Energy Agency. The TC Programme is a mainstay of national efforts to achieve the Sustainable Development Goals (SDGs).

These results are specially visible in the fields of agricultural development and eradication of hunger, public health, sustainable drinking water and access to modern and renewable energy. The applications of nuclear technology have an important role in dealing with the challenges we face as we prepare to implement the 2030 Agenda on Sustainable Development and the Paris Agreement on Climate Change.

Chair,

Brazil is at the forefront of global initiatives in the field of nuclear applications, which enable us to significantly expand the use of nuclear technologies in medicine, industry, agriculture and environmental protection.

Our institutions have a history of important contributions to the application of ionizing radiation, with roughly 50 national projects having already benefited from the Agency's TC Programme.

In medicine and human health, nuclear applications are essential to the diagnosis and treatment of oncological, cardiac and neurological diseases. Other activities include radio sterilization of biological tissues and the development and production of sealed radioactive sources for cancer radiotherapy.

The start of operation of a linear proton accelerator in São Paulo for research and training purposes will enable capacity building of health professionals and promote availability of proton treatment centers in the country. Proton therapy has become a worldwide trend in dealing with some types of cancer, especially in children.

Particularly promising is the ongoing research on the linkage of radiopharmaceuticals with nanoparticles capable of targeting specific areas on the human body, thus increasing the precision of the diagnostics and the prospects for recovery. The research on radio-labeling of aptamers for diagnosis, a new flexible and very promising technology that can be used for rapid diagnosis of diseases such as Zika, yellow fever and foot-and-mouth disease, is also in an advanced stage.

In the field of industrial product development in Brazil, nuclear sterilization of pharmaceuticals is today the most widely used technique for the effective treatment of surgical material. Significant advances are also visible in research on the application of radiotracers in industry, especially in the oil and gas sector, where they help detect leaks in industrial equipment.

The application of radiotracers in agricultural and cultivation processes optimizes the use of fertilizers, thus providing significant social and economic gains, particularly in Brazil. This is specially important to Brazil, one of the world's largest exporters of soybeans and other agricultural commodities. Research on nuclear applications in livestock focuses on improving dairy and meat production. Brazil is also carrying out research on genetic improvement of several vegetable species to increase the yield of these crops.

In addition to these and other industrial applications, there is great potential in the food industry, especially in the irradiation of grains, fruits and vegetables, which allows for better sanitary conditions in storage, transportation and commercialization.

One of the most successful examples of nuclear application in Brazil has been in the fruit industry, where we have been applying the Sterile Insect Technique (SIT) to combat the fruit fly. The same technique is being utilized in the area of human health by effectively in combating mosquitos as vectors of diseases such as dengue fever, yellow fever, Chikungunya and Zika.

Chair,

Brazil has developed radiotracers to assess the migration of pollutants in the atmosphere and in waterways. This has allowed further study of hydrodynamic processes related to both groundwater and surface water. The same technique is also being successfully applied in identifying the hydraulic flow in urban sewage treatment plants, with great success.

In conclusion, I would like to recall that Brazil co-sponsored two side events during this Ministerial Conference: one about the multipurpose research reactor under development in cooperation with Argentina; and another about application of nuclear sciences for the investigation and conservation of cultural heritage, with Egypt, France and the Netherlands.

For all these reasons, Brazil is convinced of the invaluable contribution of this Conference, and its outcomes, to advance the agenda of nuclear applications and therefore fully expect that it will become a regular fixture of the IAEA Conference Calendar.

Thank you.