

Para 273 of the Rio+20 outcome document regarding a technology facilitation mechanism

Input by the International Atomic Energy Agency (IAEA)

1. The potential functions, format and working methods of a technology facilitation mechanism

Given its very scientific and technical mandate the IAEA has developed a number of delivery mechanisms to transfer and disseminate science, technology and innovation (ST&I), thus contributing to sustainable development. The possibility to choose among various options – depending on the concrete subject matter, level or duration of envisaged interaction – gives the necessary flexibility to best address the needs of the Member States. When setting up a technology facilitation mechanism (whether as a roster of experts, a data base for information sharing or a concrete delivery mechanism), due consideration should be given to sufficient flexibility to meet diverse needs and interests but also to strike the balance between transparency and comprehensiveness on the one hand and confidentiality, safety or security requirements on the other. In this context, special emphasis will also have to be placed upon scientific integrity.

Over the last decades, the following facilitation and/or delivery mechanisms have proven to be very useful instruments for the IAEA:

- i. Technical Cooperation Programme is designed to build and develop Member State capacities in the peaceful application of nuclear science and technology for socioeconomic development. Through national, regional and interregional projects in a range of fields, the programme supplies Member States with training and education, fellowships, scientific visits, expert advice and equipment, and contributes to the achievement of major sustainable development priorities. Member States are full partners in the programme, guiding technical cooperation activities, setting national and regional priorities, and offering training opportunities and technical support to other Member States. Technical cooperation between developing countries is facilitated and supported through regional cooperative agreements. Services delivered via the programme are based on a request for assistance by Member States. Suitable nuclear applications are identified based on a comparative assessment of the different technologies available and the use of appropriate norms and standards for quality and safety.
- ii. Coordinated Research Projects (CRPs) bring together scientists from around the world to achieve specific research objectives consistent with the IAEA programme of work. They encourage the acquisition and dissemination of new knowledge about the use of nuclear technologies and isotopic techniques. They not only further nuclear knowledge, they also improve research capacity in Member States. This is especially important for developing countries that would otherwise be unable to undertake extensive research projects. The results of CRPs are available, free of charge, to scientists, engineers and other users from all Member States. The results are often of immediate, direct benefit to groups outside the scientific community, for example, farmers or hospital patients.
- iii. A system of 12 dedicated nuclear sciences and applications laboratories are a unique feature in the UN system. They are located in Vienna and Seibersdorf in Austria, and Monaco. The laboratories carry out three essential types of activities, which are supported in

Member State laboratories: applied R&D, training and capacity building, and technical and analytical services.

- iv. Collaborating Centres are renowned nuclear research and education institutions in Member States that serve as a valuable mechanism for implementing a variety of services, including regional and international trainings and fellowships. The IAEA has designated centres in Europe, the Middle East, Asia and the Pacific, Latin America, and North America; designation is for a period of four years.
- v. Networks of a scientific, regulatory or technical nature foster cooperation on a regional or global level. By pooling resources and expertise, these are valuable conduits for generating and disseminating knowledge, for sharing best practices, lessons learned and novel solutions, and for capacity building. Examples range from the Analytical Laboratories for the Measurement of Environmental Radioactivity (ALMERA) network which provides reliable and timely analysis of environmental samples worldwide, to regional education networks like the Asian Network for Education in Nuclear Technology (ANENT) which cooperates in capacity building and human resource development. A new collaboration platform, CONNECT, is being developed to provide a gateway for interconnecting existing and planned IAEA Networks.

2. The potential contribution of the organization

In agriculture and food security nuclear techniques are used to breed improved crops, enhance livestock reproduction and nutrition, and control animal and plant pests and diseases. Higher and more reliable yields not only improve farmers' livelihoods, they mean better quality and safer food for consumers. Isotopic techniques are applied for better soil and water management.

In health, nuclear techniques are used for diagnosing and treating cancer, cardiovascular and other non-communicable diseases which are growing rapidly in developing countries. Nuclear techniques also help develop and monitor interventions to combat child malnutrition.

In water resource management, isotopic techniques are used to map and manage ground water resources to increase water supplies. Nuclear techniques are also used to enhance water use efficiency in agriculture.

In environmental monitoring, nuclear techniques improve understanding of sources and sinks of pollutants, their transport pathways and their ultimate fate. Nuclear techniques are used to monitor and assess effects of climate change on the oceans, and to validate global climate and ocean circulation models. The Ocean Acidification International Coordination Centre is being established at the IAEA Environment Laboratories in Monaco, in response to the need for international coordination expressed by key players in the international scientific community and by several Member States.

Access to affordable and clean energy services is an essential enabler for attaining any development goals. The IAEA assists developing countries to evaluate their energy supply and demand and to make their own educated decisions about future electricity supply, helping build the country's capacity to plan their future energy needs. It also helps countries using or introducing nuclear power to do so safely, securely, economically and sustainably. It verifies that nuclear energy is used for peaceful purposes only, thereby directly contributing to international peace and security. Its safety

standards, assistance and reviews increase safety to the benefit of human health and the environment.

In radioactive waste management, the IAEA helps countries safely and sustainably manage radioactive waste generated from the use of radioactive material and nuclear technology such as nuclear electricity production, health care, research or industrial applications. It promotes and develops an universally applicable safety regime through the development of safety standards and the application of safe and proven technologies in radioactive waste management.

While the IAEA works in all areas mentioned above, the degree of its involvement varies from one area to another. In some areas, the IAEA carries a primary responsibility worldwide, in others it has a comparative advantage over non-nuclear techniques or is complementary to that of other organizations. The individual activities have an impact at different levels. At the local level, for example, they may improve the health and quality of livestock. At the national level, they may build technical capabilities to overcome trade barriers and increase export earnings. At the global level, they contribute to sustainable development.

Common to all levels and in all areas of work are science, technology and innovation (ST&I). ST&I can make significant evidence-based contributions to activities in the above mentioned areas and can help Member States to better articulate research priorities, solve local problems, improve production and inform policy action at national, regional and global levels, based on scientific evidence.

The IAEA can provide science and technology expertise in the fields of nuclear energy and nuclear applications to the UN development agenda, with the view of making scientific research more 'development-driven' and development more 'science-driven'.

3. List of partner organizations, essential to be involved

The IAEA works closely with Member States and collaborates with a very large number of institutions, laboratories, ministries and individual experts. It partners with more than two dozen organizations and professional bodies. Through agreements and working relationships with organizations inside and outside the UN system the reach of IAEA services is extended and benefits can be multiplied. In some cases, standing arrangements have been forged, such as the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture. There is also a long-standing cooperation agreement between the OECD Nuclear Energy Agency (NEA) and the IAEA. More recently, the IAEA and World Health Organization (WHO) officially have joined forces on cancer control and treatment. In addition to the above, the IAEA collaborates with many other UN System Organizations such as UNESCO-IOC, UNEP, UNICEF, UNDP, ILO, IOM and WMO to name a few.