IAEA Scientific Forum 2011
"Water Matters"
Report to the 55th General Conference
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Mr. President, Director General, Distinguished Delegates,

I am pleased and honoured to be given this opportunity to present to the General Conference my report on the IAEA Scientific Forum 2011, whose theme was *Water Matters: Making a Difference with Nuclear Techniques*

Mr. President,

Among the Millenium Development Goals for 2015, we have to halve the number of people without access to safe drinking water as well as to halve the number of people who suffer from hunger. Although progress has been made, there are still far too many people that do not have access to *clean* water for basic needs including for the production of food.

Oceans are one of the major sources of protein in the world and, in many coastal regions, human subsistence depends on the exploitation of marine resources. However, climate change and land-

based sources of pollution, might compromise the health state of our oceans.

Mr. President,

Having focussed on cancer control last year, the Director General decided that he would give priority in 2011 to another major global challenge, the threat to our global water resources. He also decided to make the use of nuclear techniques related to water the theme of this week's Scientific Forum. It has been devoted to explaining the problems related to water availability, the optimization of water use for food production and the protection of the oceans; as well as how nuclear techniques can help. The Forum included the participation of scientists and representatives of international, regional and national organizations, as well as beneficiaries of ongoing IAEA-supported technical cooperation projects in diverse parts of the world.

During the opening session, the Director General stressed, in reference to the title of this year's Forum, that "Water Matters". He highlighted that there is virtually no area of human activity that does

not depend on water. It is vital for human health, for agriculture, for industrial production, and for technological development.

The Director General was joined by a very distinguished panel that provided examples of the necessity for good science to underpin sound water management decisions.

In the session "**Making Water More Available",** the panelists underlined that the world is experiencing a "global water crisis" and that Agency support is helping. Yet more needs to be done.

Capacity is a real problem. Too few countries have sufficient capacity for conducting isotope analyses to properly characterize their water resources. Just as importantly, it is estimated that the number of water professionals must be increased by up to 300% in some areas.

Groundwater will be increasingly used to address the growing demand for water, yet most countries, both developed and developing, do not have sufficient information about the size and extent of their groundwater bodies. Therefore, the assessment of water resources is critical. The IAEA Water Availability Enhancement (IWAVE) project is a step in the right direction. Monitoring is essential for making

sound water management decisions. Programmes such as the IAEA's Global Network of Isotopes in Precipitation (GNIP) and national networks are extremely important to maintain and expand.

In the session "**Tackling Water Scarcity and Saving Water in Agriculture**" the panellists indicated that agriculture currently uses an average of 70% of available fresh water for irrigation. By 2050 the global population will reach 9 billion with an anticipated 50% increase in the demand for water will be needed to meet food demand. Thus increased water use efficiency in agriculture will also be required.

The 47-year-old FAO/IAEA partnership has been highly successful in improving water management in agriculture. The normative work of FAO is complemented by capacity building activities of the IAEA. An expanded FAO/IAEA partnership as well as additional partnerships is required to meet the growing challenge of global water scarcity in agriculture.

Nuclear techniques have an important role for increasing water use efficiency in rainfed and in irrigated cropping systems. This was addressed by participants who were present from an IAEA technical

cooperation project involving 19 African countries that have worked with the IAEA to implement small-scale irrigation systems, supported by nuclear techniques, to make sure that every drop of water reaches the crops to produce greater yields.

Mr. President,

In the session "**Protecting our oceans**", the panellists highlighted the transboundary nature of global issues affecting the marine environment such as: climate change, ocean acidification, pollution of the seas, and the presence of harmful algal blooms; as well as the implications that such threats may have on the productivity of the oceans. Research of the oceans has considerably developed during the last 50 years; however, we are still facing the challenge of understanding the complex processes related to global change in order to develop appropriate marine policies. Panel members concluded that nuclear techniques are often the most efficient and unique approach for addressing these needs.

The public needs to be warned in time to avoid harmful algal bloom events. Nuclear techniques, such as the Receptor Binding

Assay, are the most effective for providing early warning systems that can prevent socio-economic losses.

In the absence of long term series of environmental data, sediment cores are the only way to obtain information needed to understand global changes, from land based pollution sources to the acidification process of the oceans, and predict consequences. 12 Caribbean Member States, supported by an IAEA technical cooperation project, received capacity building and technical support in the use of natural and artificial radionuclides to make historical reconstructions of such environmental changes. Through this they have gained an understanding of the relevance of land-based sources of pollution and their impacts on the marine environment. Such success stories can be replicated.

Mr. President,

The panellists and participants have made clear the importance and urgency of responding to the global water crisis. This will become even more severe with increasing global change. Three factors were identified for improving responses to the crisis:

1. **Credible and timely scientific data to support decision making.** Nuclear techniques are very helpful, sometimes cheaper and more accurate than traditional methods to provide information needed for management.
2. **More effective communication among end users, scientists and supporting agencies to maximize impact.** It is not simply enough to generate data. It is imperative to be able to communicate results to the public; and that scientists and end–users participate jointly in the design and implementation of water management policies and programmes. Mutual outreach to communicate results (for scientists) and needs (of end users) should be a high priority.
3. **A stronger strategic framework for cooperation and synergies through collaborative partnerships should be established.** It is important that UN agencies and programmes that are working on water issues, work closely together. Furthermore, partnerships between other organizations, and end users, and in particular with Member State institutions and other stakeholders should be enhanced.

In concluding, the Scientific Forum showed the significant capabilities that have been established in several MS as well as the opportunities that exist. However, more still needs to be done to optimize and enhance capabilities to use nuclear science and technology for a better planet!