

path towards **the Future**

by Ruud Lubbers

Considerations on the future role of the IAEA emerged from its 11th Scientific Forum.

In this era of incessant change, “the future”, it is said, “has a way of arriving unannounced”. Organisations, therefore, face a constant challenge to try and discern the trends that are likely to affect their future and to map the way ahead.

It is acknowledged that different expectations exist and will continue to exist on what the future holds in store. However, from our discussions [at the 2008 Scientific Forum] it was evident that the IAEA has over half a century of its existence assumed recognisable roles along well defined trajectories.

➔ In certain spheres of activity it is the acknowledged lead actor globally. For example, verification of the fulfilment of non-proliferation commitments;

➔ In certain other areas, for example in assessing nuclear energy as part of the global energy sector, the IAEA plays an important role as the place in the world where long-term visions, strategies, innovation and nuclear planning can be discussed and, hopefully be condensed into a shared view of all Member States on the nuclear future. The IAEA also assists States in developing infrastructural requirements, energy assessments that support decision making;

➔ While safety and security are national responsibilities, the development of international safety standards and nuclear security norms based on best practices is a key IAEA role; and

➔ In yet other areas, such as the entire spectrum of development assistance, the role the IAEA plays is strategic but modest, making specific targeted

contributions in activities where nuclear techniques have a comparative advantage.

Let me outline the contours of what participants at the Scientific Forum viewed as the IAEA's future along these trajectories. It is, of course, entirely possible that there may be drivers in the future that could lead to changes in these trajectories.

Safeguarding Our Future

It was an unfortunate twist of fate that the first public demonstration of nuclear technology was its destructive power. That association of nuclear technology with destructive capabilities has remained the predominant concern in the public perception of all things nuclear. Irrespective of the forum in which they are pursued, efforts towards nuclear disarmament, arms control and non-proliferation will remain crucial to the future of all aspects related to the public acceptance of nuclear technology. The perils of the ‘dark’ side of the nuclear equation are such that the IAEA's verification role will always remain, in the public's perception, an overwhelming priority.

Much will depend on what will be the shared safeguards and verification standard applied in 2020. In case it would be, as it is widely expected, the combination of a comprehensive safeguards agreement and an additional protocol, this would imply continuing changes to the verification culture and practices including more information-driven verification activities, use of state-of-the-art technologies, high caliber staff, outsourcing, etc. Since the IAEA's resources are unlikely to increase at the same pace

as its increasing verification activities, efficiency requirements will also be greater. Transparency and cooperation with States and with nuclear vendors embedding safeguards features directly and deeply into their facility designs, systems and components, will play important roles.

Initiatives have been launched to develop policies, concepts, technologies, expertise and infrastructure necessary to sustain the international safeguards system as its mission evolves over the next 25 years. Meeting successfully new global challenges needs also other innovations related to fourth (IV) generation reactor systems and multilateral approaches to the nuclear fuel cycle.

Past initiatives for multilateral nuclear cooperation did not result in any tangible results. Proliferation concerns were perceived as not serious enough. Economic incentives were seldom strong enough. Concerns about assurances of supply were paramount. National pride also played a role, alongside expectations about the technological and economic spin-offs to be derived from nuclear activities. Many of these considerations may still be pertinent.

However, the result of balancing these considerations today, in the face of a possible multiplication of nuclear facilities over the next decades and the possible increase in proliferation risks associated with sensitive parts of the nuclear fuel cycle, may well produce an environment more conducive to multilateral nuclear approaches in the 21st century that may help the expansion of nuclear power.

Myriad technical issues of an evolutionary nature will form the “bread and butter” tasks in the foreseeable future. On the other hand, it is imperative not to lose sight of the commitment of all of us to “de-demonize” nuclear technology. The genie cannot be put back into the bottle. We need, however, to be assured that it is up to no further harm. This can only be done if disarmament and arms control return as the focus of the international agenda. It is rightly pointed out that the IAEA is not the lead agency or forum for nuclear disarmament.

However, it must prepare for and be ready to respond to the technical needs of verification which will be required to be met as and when the political decisions are taken in the appropriate fora. As the Secretary General in his message to the 52nd session of the General Conference indicated, future progress in nuclear disarmament may also bring opportunities for the IAEA in the area of verification, transparency and irreversibility.

Partnerships for Meeting Energy Needs in a Safe and Secure Manner

It is estimated that the world’s energy needs could be 50% higher in 2030 than they are today. There are rising expectations in the area of nuclear power that are gradually leading towards a renaissance of nuclear energy, through expanding programmes in ‘mature’ countries and through new programmes in ‘newcomer’ countries alike. As a result, the nuclear landscape in the next decades might look fundamentally different from that of today.

A second important fact affecting the nuclear future is that the perceived or real concerns associated with the disposal of spent fuel and radioactive waste remain. To a large extent, public acceptance of the use of nuclear power depends on the solutions to this issue. The expectations from the IAEA are likely to be:

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- ➔ A continuing demand for support stemming from operating nuclear installations;
- ➔ In the short and medium term, requests for more support for ‘newcomer’ countries, either through providing planning and decision-making guidance or through direct assistance;
- ➔ To ensure the sustainable development of nuclear energy, continued IAEA support will be needed in finding appropriate solutions for the back-end issue, keeping in mind concerns linked to scarcity of resources, technical sustainability of the complete global nuclear system and public acceptance;
- ➔ The IAEA will be asked to contribute to innovation that will be key for building the nuclear fleet of tomorrow, be it in nuclear power technology, fuel

cycle technology or innovations in institutional arrangements;

→ The IAEA should continue to be an active player in the global debate on climate change, possibly also in connection with public acceptance campaigns, taking advantage of its role as a trusted international organization.

The envisaged renaissance depends very much on the success of international cooperation and approaches, and thus on the IAEA, in particular regarding confidence-building, communicating with the public and with governments, and in consensus-building through a global discussion. A bright future of nuclear energy does not only depend on individual countries' policies. It depends on all those who want to use its benefits to get it right every time, thus the world needs to do nuclear together.

A stringent approach to safety and security is necessary to enable this renaissance. Measures to advance nuclear safety and security are important and should be achieved in a way which harmonises them.

There is recognition that, while safety requirements are well established, not all safety problems have been resolved. In addition, security requirements continue to develop. Care must be taken to ensure that this process of continuous improvement results in harmony between safety and security. It is important to emphasize that the protection of people and the environment is the ultimate goal and that harmonization of safety and security is a means to achieve the end goal, it is not the end goal itself.

Continuous international cooperation will be required to facilitate improvements to safety and security. Numerous challenges remain in harmonizing safety and security, in particular because security often involves sensitive information. The IAEA has a leading role in this harmonization process through the definition of instruments, standards and norms and the provision of services. It will require strengthened capabilities including adequate resources to take on this expanded role and to continuously improve its standards, guidance and services.

Opportunities in Partnerships for Development

The development scenario is one of pressing, unfulfilled needs. Amidst the vast expanse of unfulfilled needs, the validity, indeed the viability of an organ-

isation adopting solely a normative role, while having the capacity to contribute its mite to developmental goals is a non sequitur. At the Forum, it was a widely shared belief that targeted assistance in human health, food and agriculture, environment and water resources are areas where nuclear technologies can make a difference.

By way of illustration, let me provide a few examples of where Forum participants strongly felt that the IAEA can and should be doing more, much more, in the future:

→ While combating cancer is a multi-dimensional effort, nuclear techniques have a unique role in cancer diagnosis and therapy. Radiation therapy — a lifesaving component of treatment for over 50% of cancer patients in high income countries — remains out of reach for millions of cancer patients in the developing world. The current shortage of radiotherapy machines in developing countries exceeds 5000 machines, with no radiotherapy capacity at all in more than 30 countries in Africa and Asia. The IAEA has unrivalled experience in the transfer of radiotherapy and diagnostic imaging technology and nuclear medicine procedures to developing countries as part of its support for the safe, effective and sustained implementation of radiotherapy and nuclear medicine services.

→ If the target set by the UN of 50% more food annually by 2030 is to be met, food production must grow by 2% per year. Historically, every quantum leap in food production in the past was based on a change in agrarian practices along two dimensions, namely a change in cultivation practices combined with genetic selection of new crops, varieties and breeds. The Joint FAO (Food and Agricultural Organisation)/IAEA Division is well placed to participate in and contribute to both these endeavours. It can assist in transforming cultivation practices by transferring methodologies aimed at making ecosystem services visible and valued by policy makers, starting with plant nutrient transformations in soil ecosystems, crops and livestock. Partnerships with environmental scientists, ecologists, agronomists, livestock specialists, nutritionists, social scientists and policy makers need to be pursued. Similarly, nuclear scientists will need to partner with geneticists, plant and animal breeders, molecular biologists and social scientists to play a meaningful role in surmounting the challenge posed by the need for appropriate genetic varieties and breeds.

→ The combination of a growing population, increased industrial growth and irrigated agriculture has stressed the global freshwater resources

over the last several decades. Isotope and nuclear techniques have demonstrated their utility in understanding water dynamics, past climates and in assessing available resources. Isotopes help to rapidly and cost-effectively provide scientific information on, and understanding of water resources – that may otherwise not be possible or may require observations over decades. Additionally, in order to apply isotopes at local or regional scales and in particular to assess the impact of climate change, methodologies and reference data sets are needed on an international scale. The IAEA's continued role in collecting isotope data and assisting developing countries to use such data will remain important in the future. There is also a continuing need for the IAEA to build sufficiently trained capacity and to help countries use isotopes for their national water resource assessment and management efforts. To maximize the effectiveness of its work, the IAEA needs to enhance partnerships with other UN and international programmes and agencies such as the World Bank, the Global Environment Facility (GEF), United Nations Development Programme (UNDP), World Meteorological Organisation (WMO) and United Nations Educational, Scientific and Cultural Organisation (UNESCO).

Given the overwhelming nature of development needs, the scope for an enhancement of the IAEA's future role in this area remains vast. However, for this to happen, the provision of operational support through enhanced technical cooperation in partnership with other organisations will need to be supplemented by giving thought to overcoming factors that have impeded the full potential of nuclear technologies being realised. Working towards enhancing acceptability, accessibility and affordability of nuclear technologies for development will be the key to success of the IAEA as an organisation contributing to development.

Concluding Remarks

In their capacity as specialists, the Forum participants did not delve into the financial and administrative minutiae of the Future Role of the IAEA. It was self-evident to all of us, and this is a fact I would like to emphasize, that growing expectations vis-à-vis the IAEA will have to be accompanied by a consideration of the need for additional resources. Such resources should not be subject to artificial constraints. As President Eisenhower once said, "there is no victory at bargain basement prices."

To sum up, let me reiterate those five items which were the most relevant messages that we heard in

the course of this Scientific Forum and which are vital from the point of view of the IAEA's dual mission for development and security:

- ➔ The nuclear landscape is changing. In modern organizations there is no success without a strategic framework, where a shared vision is a critical focal point giving shape and direction to the organization's future. The world needs the IAEA to plan to stay ahead of the curve and should provide it with the required mandate, strengthened capabilities and necessary resources;
- ➔ The IAEA needs to provide more technical assistance to individual Member States, working through the transfer of technology, decision making support, planning tools, capacity and knowledge building and R&D coordination;
- ➔ The IAEA needs to work towards enhancing acceptability, accessibility and affordability of nuclear technologies for development;
- ➔ The IAEA needs to make sure that all existing and planned nuclear installations respect safety, security and safeguards requirements; and
- ➔ The IAEA needs to be the place in the world where technical visions are shared and — hopefully — harmonized to build one nuclear future that the world creates jointly.

The path towards the future is a journey and not an end. When looking back at the history of the IAEA in maybe 10, 20, or 50 years, the process of discussions on the "Future Role of the IAEA", and all actions that we expect to be triggered by these considerations will form a milestone in the course adopted by the IAEA. That the participants of the Scientific Forum were part of this process and hopefully will have contributed to the transition which comes about, is a matter of satisfaction to all of us who participated in this venture. We are honoured to have had the opportunity to be part of this process. 

Ruud Lubbers, former Prime Minister of the Netherlands, chaired the 11th IAEA Scientific Forum held from 30 September-1 October 2008 in Vienna, Austria.

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Finding a New Role

Giovanni Verlini spoke with Ruud Lubbers after the conclusion of the 11th IAEA Scientific Forum.

Question: What are in your view the nuclear issues of the 21st century?

Ruud Lubbers: The nuclear issues of the 21st century are essentially those of the past, as they haven't really changed.

There are two dimensions to them: the world agreed to promote atoms for peace and prosperity, while at the same time find a way to gradually reduce and ultimately ban nuclear arms.

This was many decades ago, but if you take stock today, at the beginning of a new century, this is still the call: to do these two things together.

Q: What do you think is the current status and role of the IAEA? Is the IAEA equipped to deal with the challenges lying ahead?

RL: The IAEA has a good name and reputation. I would not say it is in difficulty, but it is facing challenges nonetheless.

Firstly, it needs reinforced financial means. Secondly, in reducing nuclear arms and preventing proliferation the IAEA is in a difficult position.

Q: In the past you spoke of the need for supranational means to address the nuclear challenge. What role should the IAEA play in a reinforced global nuclear order?

RL: I believe that the role of the IAEA should be strengthened anyhow. But let me give you a couple of examples more to the point.

After World War II, when six European countries decided to get together in a community, they also concluded that it would be wise for them to organise an "atoms for peace" as one community. That tradition is still there in Europe: when a country builds a nuclear power plant, still, legally speaking, the fissile material is property of the EU.

In the Middle East, there have been talks of establishing a nuclear weapons free zone. For this to happen, you need a supranational agency in charge of



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(Photo: De Derde Kamer)

fissile material in the region. That's the only way it could be done.

Q: Do you think the IAEA should have a role in disarmament and nuclear weapons monitoring as well?

RL: Yes. An Agency with a monitoring and reporting role would create confidence in the public at large. But it is for the international community to entrust the IAEA with this role.

Q: What should be the role of international partnerships between the IAEA and other international organizations?

RL: There are many issues on the table today: Millennium Development Goals (MDGs), climate change, water resources, etc. There is an awareness of the fact that these problems should be addressed together. The IAEA is in the centre of these issues and should play a key, partnership role in addressing them.