



IBA Annual Conference Vienna 2015

**Supply of Energy and Resources: Geopolitical Challenges
Energy, Environment, Natural Resources and Infrastructure Law Section**

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- NUCLEAR ENERGY AND THE INTERNATIONAL ATOMIC ENERGY AGENCY -

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Thank you, Arent and Jean-Andre (co-Chairs). Good morning.

It is a pleasure to be here with you to speak about nuclear energy and the International Atomic Energy Agency (IAEA). In the next twenty minutes I aim to give you a snapshot of nuclear energy: its status, drivers; role and contribution to Global energy development, as well as some challenges.

I shall also address aspects of the IAEA's mission as concerns the safe, secure and peaceful uses of nuclear energy worldwide. In particular, as concerns helping those Member States that have decided to use nuclear energy to do so in a safe, secure, peaceful, responsible and sustainable manner.

A number of publications are available at the back of the room. In particular, a special edition of the publication, the IAEA Bulletin on peaceful uses of nuclear energy, entitled "Atoms for Peace and Development (March 2015) and an IAEA publication "Developing Infrastructure for New Nuclear Power Programmes" (which highlights IAEA services available for its Member States).

For those of you not familiar with the IAEA, it is an international organisation established in 1957 and headquartered next door to this Building (the ACV), in the Vienna International Centre (VIC). It is an autonomous organization within the United Nations system. In terms of its mandate, the IAEA can be understood as being the global centre for cooperation in nuclear applications, energy, science and technology, safety and security and non-proliferation/verification.

It currently serves 165 Member States and has over 2400 staff in its Secretariat which is headed by Director General Yukiya Amano (Japan), since 2009.

The origins of the IAEA stem from President Eisenhower's 1953 "Atoms for Peace" speech. The Agency's objectives as outlined in Article II of its Statute, include "to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world".

For those of you not familiar with nuclear power's role in the global energy mix the following figures should be of interest.

As of today, 438 nuclear power reactors operating in 30 countries provide about 11% of the world's electricity. They have a combined capacity of about 381 Giga Watts. The Agency's projections show that nuclear power is likely to continue to grow in the coming decades: the studies show a steady rise in global nuclear power capacity by 2030.

There have been 6 new grid connections so far this year and 6 permanent shutdowns. An increasing number of developing countries are considering introducing nuclear power as part of their energy mix or expanding their use of nuclear power. In fact, there are 67 units under construction.

While these figures somewhat speak for themselves, they alone do not outline the bigger picture.

Some 30 countries are already using nuclear power and another 30 are considering, and some of them preparing to build, their first nuclear power plants. Most of these possible newcomers are developing nations.

Most of the growth looks likely to be in Asia, where existing nuclear power users such as China and India have major expansion plans for the next 20 years or so.

But countries in other regions are also building their first plants. The United Arab Emirates has three nuclear power reactors under construction, the first of which is expected to be operational by 2017. Belarus is also building two units. A number of other countries are also at an advanced stage of nuclear power development. Access to nuclear power is no longer limited to developed economies.

There are of course challenges, such as an ageing worldwide fleet of nuclear power plants and the financing of nuclear new build. It is also clear that the accident at Japan's Fukushima Daiichi NPP on 11 March 2011 undermined worldwide public confidence in nuclear power. Some people predicted a period of prolonged global stagnation for nuclear power, as was the case after the Chernobyl accident in 1986. Yet, while a few countries announced the intention to phase out nuclear power, overall there is an increased interest. Global use of nuclear power will therefore grow, albeit at rates which are likely to be slower than estimated before the accident.

Further to the accident, the IAEA, Member States and other stakeholders have been implementing the Action Plan on Nuclear Safety with the aim of strengthening nuclear safety worldwide. The fourth and final annual report on the implementation of the IAEA Action Plan, published last month, shows that progress continues to be made in improving global nuclear safety. Activities highlighted under the Action Plan will continue to be addressed through the regular work of the Agency. Significantly, the Director General's report on the Fukushima Daiichi accident was distributed in August, along with five technical volumes.

The continued interest in nuclear power is not surprising. Many countries continue to see an important role for nuclear power as part of their energy mix. The drivers that existed before still remain, primarily, increases in global electricity demand. Many countries believe that nuclear power can help to improve energy security and make their economies more competitive.

Clearly, fossil fuels will play a central role for many decades to come. Notwithstanding, many countries are investing heavily in renewable energy sources such as wind and solar – not just as alternative sources of power, but also because of concern about climate change. It is clear that renewables will grow in importance in the coming decades.

For many of you, the IAEA is probably known for its role at preventing the spread of nuclear weapons. We are most recently often in the news on issues concerning nuclear verification in Iran, which I am pleased to highlight recently resulted in positive news.

Today, Director General Amano stresses that the IAEA is “much more than just the world’s nuclear watchdog.” Particularly in the context of the adoption of the 17 new Sustainable Development Goals (SDGs) just adopted, he has emphasised the importance of science and technology for development.

In this regard, he considers the Agency’s work as being better understood, not only in relation to “Atoms for Peace” but as “Atoms for Peace and Development” (emphasis added).

While the IAEA’s non-proliferation and safeguards role is central, the inclusion of “development” is a reflection of the Agency’s vital role in making nuclear technology available to developing countries for peaceful purposes. More particularly, in helping them to reap the benefits in diverse areas such as human and animal health, food security, water management, electricity generation, and environmental protection - to name just a few.

Both these important roles were recognised in the award of the Noble Peace Prize to the IAEA, a decade ago.

Ladies and gentlemen,

Access to secure, sustainable and affordable energy is of prime importance for socio-economic development.

Nearly every aspect of development, from reducing poverty to raising living standards, from improving health care to increased agricultural productivity, requires reliable access to modern energy sources. Better access to clean energy is also critical to mitigate the continuing environmental degradation caused by the poor management of natural resources.

The IAEA participated actively in the process leading to the development of the new SDGs. The new goals cover poverty, hunger, human health, clean water, affordable and clean energy, industry and innovation, and climate change, to name just a few.

As stated by Director General Amano, “[t]hese are all areas in which nuclear science and technology have much to offer.” Importantly, there is explicit recognition in the new development goals of the importance of science and technology in advancing development. There are then clear links between the new goals and the work of the Agency.

The IAEA has been contributing effectively to sustainable development for nearly 60 years. The IAEA technical cooperation programme is the main vehicle through which we transfer nuclear technology to developing countries.

Areas covered include energy, food security, nutrition, human health and environmental protection, as well as the management of water resources. For example, the IAEA enables farmers to grow more abundant crops of rice and barley. Also, the IAEA helps countries to monitor and respond to marine pollution. And it assists countries in providing life-saving access to radiotherapy for cancer patients.

SDG 13 address climate action (“Take urgent action to combat climate change and its impacts”). Nuclear science, including, nuclear power can play a significant role in both climate change mitigation and adaptation.

A major driver for the continued interest in nuclear power is therefore, the concern about climate change and the positive role nuclear power can play in mitigating its effects.

Along with wind and hydro, nuclear power is one of the lowest-carbon technologies available to generate electricity, considering emissions through the entire life cycle (nuclear power generation does not produce either air pollution or greenhouse gas emissions).

As Director General Amano has stated, it is therefore one of the reasons that many countries remain interested in adding nuclear power to their energy mix, or expanding existing nuclear power programmes, not least because of the contribution which nuclear can make to mitigating the effects of climate change.

According to the latest World Energy Outlook statistics, the use of nuclear power has already prevented the release of around 56 gigatonnes of carbon dioxide since 1971. This is equivalent to two years of global emissions at current rates. This is a very significant achievement, and shows the potential of nuclear power in climate change mitigation. Furthermore, by 2040, nuclear energy will have prevented the release of four years' worth of CO₂ emissions.

In addition, with regard to adaptation, nuclear science and technology can play a vital role in assisting countries to adapt to the consequences of climate change. For example, the development of new watering techniques in increasingly arid regions and new technologies to measure the impact of climate change - better flood control in the Philippines and the development of new watering techniques in increasingly arid regions of Kenya.

At the end of this year delegates from over 190 countries will meet in Paris for the 2015 United Nations Climate Change Conference in an attempt to negotiate a legally binding, universal agreement on climate change. In this context, Director General Amano considers that "it is important that the contributions that nuclear science and technology can make to combating climate change are recognized."

SDG 7 calls for access to affordable, reliable, sustainable and modern energy for all. In this regard, many countries believe nuclear power can help them to achieve this goal.

Nuclear power can provide the steady supply of baseload electricity needed to power a modern economy. It is also one of the lowest carbon technologies available to generate electricity, when emissions through the entire life cycle are considered.

It is the sovereign decision of each individual country whether or not to add nuclear power to its energy mix. IAEA cannot make and implement decisions for its Member States. But for countries that choose nuclear power, the IAEA's job is to provide comprehensive assistance to help them "use nuclear technology in a safe, secure, sustainable and environmentally friendly manner". We do not pour concrete. We do not finance nuclear power plants. Yet, providing support, upon request from Member States that are considering new nuclear power programmes, continues to be a high priority for the Agency.

For example, we can advise on how to put the appropriate legislative and regulatory framework in place and how to ensure the highest standards of safety, security and safeguards. We can help to build national capacity and expertise in resource evaluation, energy demand and energy system analysis and planning. Also, we can offer know-how on the construction, commissioning, start-up and safe operation of nuclear reactors. In addition, we establish and adopt nuclear safety standards and security guidance.

Further, we can offer expert peer review missions to assess the operational safety of nuclear power plants and the effectiveness of nuclear regulators – and in many other areas, and we can help with advice on the decommissioning of plants at the end of their natural lifetimes.

The end-result, we hope, is that countries will be able to use nuclear power safely, securely and sustainably.

Building a nuclear power programme is a major undertaking of at least 10 to 15 years. It requires careful planning, preparation and investment in time, institutions and human resources. While nuclear power is not alone in this respect, it is unique due to the safety, security and safeguards requirements associated with using nuclear material. For this, the Agency has developed a Milestones Approach: a methodology covering 19 key infrastructure issues, in 3 phases and with 3 milestones. It was recently updated to reflect new developments

since it was first launched in 2007, for example, due to the use by newcomers of alternative contracting and ownership arrangements rather than a competitive bidding process.

One of the Agency's most requested services by nuclear newcomers is the Integrated Nuclear Infrastructure Review or INIR mission, first started in 2009. These are review missions by international experts who help countries assess the status of their national nuclear infrastructure. They are part of the comprehensive package of assistance which the IAEA provides to help ensure that even the most challenging issues in introducing nuclear power can be successfully dealt with.

It would not be correct to speak to a room of legal minds without touching upon nuclear law. It is a special body of law, with both a national and international component, the objective of which is to provide a legal framework for conducting activities related to ionizing radiation in a manner which adequately protects individuals, property and the environment.

Part of the work of my office is to assist Member States in adhering to and implementing the relevant international legally binding and non-binding nuclear instruments in the areas of safety, security (terrorism), safeguards (non-proliferation) and civil liability for nuclear damage.

This support includes the provision of legislative assistance such as helping Member States in drafting national nuclear laws that implement their international obligations and commitments, as well as standards and guidance. In addition, we have a comprehensive training programme for lawyers, the most important of which is our annual Nuclear Law Institute currently taking place this week here in Vienna.

Clearly, in this endeavour we are not alone in the IAEA Office of Legal Affairs. I know that a number of you in this room also assist Government's and industry; for example, in helping them to deliver new nuclear power programmes, whether it be in respect of energy planning, procurement, siting, or the development of the national nuclear legislative and regulatory framework.

An important development is the signing last month by Director General Amano of the Host State Agreement and related technical agreement with the Government of Kazakhstan establishing an IAEA Bank of low enriched uranium in that country. A second technical agreement was concluded with the operator of the IAEA LEU Bank. This is a significant step forward. The legal framework is now fully in place and we can move towards full-scale implementation. We are now working out the relevant details to do so with Kazakhstan. This includes bringing the IAEA LEU Bank Storage Facility in Kazakhstan to operational readiness.

The IAEA LEU Bank is important because it is an assurance of supply mechanism of last resort for Member States, and one which won't distort the commercial market. It provides confidence that Member States will always have a source of supply of LEU notwithstanding unforeseen possible disruptions to their existing LEU supply arrangements.

It is expected to take about two years to do all the work necessary to establish the IAEA LEU Bank.

Ladies and Gentlemen,

In concluding, in the last 50 years, the use of nuclear power has undoubtedly led to a substantial reduction in the amount of greenhouse gases that would otherwise have been emitted.

Needless to say, nuclear power's future depends on the highest levels of safety that Member States have to ensure. The IAEA stands ready to help through everything it has in its toolbox, such as standards, guidance, education, training and peer review missions.

From the legal perspective, we continue to help Member States in adhering to and implementing the relevant international legally binding and non-binding nuclear instruments.

On this note, on behalf of the Agency, I wish you all a successful Conference.

Thank you.
