Final summary

The International Conference on Access to Civil Nuclear Energy, organised by France in coordination with the IAEA and with the support of the OECD, was attended by 63 countries, representatives of international organisations (such as the European Commission and the World Bank) and the nuclear industry and various qualified persons.

The participants unanimously noted the importance of the event on the international calendar and took the opportunity to make numerous contacts.

France organised the conference in response to genuine demand for deeper dialogue on the issues related to the development of civil nuclear energy between countries that possess nuclear technology and know-how and countries that wish to access nuclear energy, which does not generate greenhouse gases.

- **An observation: demand for nuclear energy around the world**

Given global warming and the scarcity of fossil fuels, governments need find new solutions to meet their growing energy needs.

That challenge will become acute for developing countries, home to three-quarters of the world population but which currently account for only one-quarter of global energy consumption.

Managing consumption is only one response; it must be matched by the development of non-carbon energy sources. Of these, nuclear is a powerful source of energy of proven efficiency.

The participation of 63 countries, around 40 of which were represented at ministerial level at the Paris Conference, reflects the growing interest in this energy source and the relevance of international dialogue on these issues.

Nuclear energy cannot remain an option only for countries that already have the technology. It must be accessible to all countries that comply with their non-proliferation commitments.

- **Need for countries to commit to responsible development**

The decision to switch to nuclear energy must be taken by the country with a concern to comply with the strictest standards in terms of safety, security, non-proliferation and preservation of the environment for future generations.

The development of a nuclear power programme is the responsibility of each country. The IAEA can provide assistance with defining a framework with respect to international rules.

In the short term, it is essential to implement an appropriate regulatory framework and institutional, technical and training infrastructure, including an independent safety authority.

The country's commitment must be seen as a long-term commitment in order to create favourable conditions for investors and guarantee the conditions for responsible development that cover safety, security, civil liability for nuclear damage and waste management issues.

The sustainability of a nuclear programme also depends on the confidence:

-of the population. Transparency and public information are key to the acceptability of a programme.
-of neighbouring countries and the international community. Full compliance with international

obligations and the implementation of the highest standards in terms of non-proliferation (including a safeguards agreement with an additional protocol) are essential.

The government and industry must be involved in their respective areas of expertise.

Confidence is boosted when the nuclear programme is developed in accordance with the highest levels of safety. These standards are improved continuously. Third-generation reactors represent significant progress in terms of safety.

The Western European Nuclear Regulators' Association (WENRA) and the Multinational Design Evaluation Programme (MDEP) initiatives enable national safety authorities to share best practices and experience with a view to facilitating the licensing of new reactors.

The implementation of a strategy for managing spent fuel and waste is fundamental. Reprocessing and recycling of spent fuel is now a promising option. Research is ongoing. In the long term, it will be necessary to reuse the residual energy resources in spent fuel, particularly in the future fourth-generation reactors. This strategy should include the financing of the costs of long-term management of radioactive waste, taking proper account of the liability of producers of radioactive waste.

Lastly, **it is crucial to ensure secure supply to the countries introducing civil nuclear energy programmes**. The initiative of a fuel bank under IAEA control seeks to meet that expectation.

- **Enhanced international cooperation to meet the specific needs of countries seeking to launch nuclear power programmes**:

International cooperation is essential to enable broad, responsible access to civil nuclear energy, and to guarantee the continuous improvement of practices and technology.

Civil nuclear energy can create new ties between the countries that produce uranium, the countries that have technology and the countries switching to nuclear energy that have specific needs in terms of financing, training and technical assistance (in project development and operation).

With respect to **financing:** a nuclear programme implies a massive initial investment, which will only become profitable in the long term. That remote and uncertain horizon can dissuade investors (e.g. low visibility of the long-term electricity market, political, societal and/or regulatory risk, low attractiveness if the project is appraised with a high discount rate).

The costs induced by a nuclear programme are not limited to construction. They include the costs of operating and maintaining reactors, the cost of fuel, long-term costs (dismantling, management of radioactive waste and spent fuel) and expenses related to nuclear risk (chiefly within the framework of the international civil liability regime). The economic context is a decisive factor in the decision to develop a nuclear power programme.

Nuclear energy is nevertheless economically competitive. Experience has shown that over the long term, it enables electricity to be generated at a stable price that is fairly insensitive to variations in the cost of the fuel. That advantage over other types of electricity generation increases when the cost of carbon emissions is factored into the equation.

Countries introducing nuclear power programmes still have trouble finding a project developer that can raise the necessary financing. One way of overcoming that obstacle would be to form partnerships with tried and tested industrial partners (which could contribute their know-how and financial resources) or with major local consumers of electricity, which could contribute to financing the programme.

Supplier countries are also developing national export credit systems. Noteworthy efforts were made in 2008, with the relaxation of OECD rules on export credits for nuclear energy.

Because nuclear energy can help mitigate global warming, it should benefit from international financing.

With respect to **training** : a nuclear power project (implementation of an independent nuclear safety authority, construction and operation of a reactor, dismantling, etc.) requires highly qualified personnel in a range of fields (technicians, engineers, doctors, lawyers).
The training issues are important, whether for countries that already have nuclear power and are looking to expand their fleet or to return to nuclear energy (jumping a generation), or countries that are introducing nuclear programmes for the first time (skills acquisition). Careers in the nuclear industry need to be made more attractive in order to attract top students.
Initiatives exist, such as the European Human Resources Observatory for the Nuclear Energy Sector and the European Nuclear Energy Leadership Academy (ENELA).

International cooperation in training should be expanded.

- **Towards continuous improvement in nuclear technology: research and development**

Nuclear technology is now mature. However, ongoing research remains important to constantly improve safety and productivity (e.g. via R&D on fuel), and to study the feasibility of extending nuclear reactors' life spans in accordance with safety requirements.
Research is underway, in particular within the framework of the Generation IV International Forum (GEF), to develop fourth-generation reactors, in order to better utilise uranium resources and to reduce the amount of waste.

Participation in nuclear research programmes is important, even for a newcomer to nuclear energy, because it enables the country to develop its own expertise and demonstrate its ability to manage the technology it uses (which facilitates acceptance by the public). It is an integral part of the country's long-term commitment to nuclear energy./.