As the world continues to come to terms with the aftermath of the Fukushima accident, MNB editor Judith Perera asked Professor Bychkov about his department’s plans to increase safety and support countries in their nuclear development.

**JP:** What do you see as a priority for the IAEA’s Nuclear Energy Department?

**AB:** We have a number of priorities: an important one is to implement post-Fukushima priorities and to ensure a strong contribution to the Agency’s *Action Plan on Nuclear Safety* in response to the Ministerial Conference on Nuclear Safety. The *Action Plan* was recently approved by the Board of Governors and endorsed by 151 member states at the General Conference. Specific actions in the *Action Plan* will also entail additional activities in the nuclear energy area, in particular to bring to bear the Agency’s engineering expertise that proved so important in our response to the accident and to ensure an appropriate focus on reactor operators, who have the principal responsibility for all dimensions of a plant’s safety. We are initiating new activities in the area of nuclear energy in response to the accident, for example, to help reduce risks from spent fuel accidents and improve severe accident management and the performance of plant monitoring systems in such an accident.

**JP:** Do you expect now less demand for Agency support in the nuclear energy area?

**AB:** There is no service that we provide in the area of nuclear energy for which we foresee a substantial decrease in demand from member states. Therefore, we are continuing to offer the full range of services offered before the Fukushima accident. These include nuclear infrastructure review missions, missions to review plans for extending operating lifetimes at existing reactors, and also training and assistance in conducting nuclear energy system assessments (NESAs) using the methodology developed by INPRO, the International Project on Innovative Nuclear Reactors and Fuel Cycles. Another service is the INPRO Dialogue Forum for information exchange between nuclear technology holders and technology users to help steer innovation in directions that have mutual benefits. And knowledge assist visits’ and other nuclear knowledge management activities will also continue in response to increased member state interest.

**JP:** What about countries that are planning a new nuclear power programme?

**AB:** The nuclear newcomer countries will continue to be a high priority for the IAEA. Our post-Fukushima projections indicate that the accident will slow growth in nuclear power but not reverse it. Most countries that had strongly indicated their intentions to introduce nuclear power are continuing as planned, except with the added step of incorporating all the lessons of Fukushima into their programmes. Only a few countries have cancelled or reduced the extent of their plans, or adopted a wait and see approach.

**JP:** How can the Agency help newcomers?

**AB:** Newcomers need to build up technical capacity in many areas, and co-operation with experienced countries is very
important. Newcomers are also adjusting to a new set of realities such as addressing public confidence and acceptance, especially post Fukushima.

The Agency offers a whole range of services, such as guidance and standards, training, symposia and workshops and peer reviews. We established the Integrated Nuclear Infrastructure Group (INIG) a year ago, and INIG has carried out nuclear infrastructure review missions in five countries in the past year – Jordan, UAE, Indonesia, Thailand and Vietnam. These missions review the overall status of the infrastructure development for a new national nuclear power programme and provide feedback in areas where further work would be beneficial. The next mission is scheduled in Bangladesh with others planned for Belarus, Poland and South Africa. There is strong co-operation between all IAEA departments to support newcomers in developing their infrastructure for nuclear activity. Experienced countries are also willing to share their experience with newcomers.

**JP: What other activities are under way?**

**AB:** Many activities are planned related to the nuclear fuel cycle, nuclear waste management, research reactor utilisation and conversion, nuclear knowledge management, and nuclear data collection. There is also inter-departmental co-operation on activities concerning the fuel cycle starting with uranium mining all the way through waste management and disposal, with dedicated technical groups on topics such as fuel and materials as well as on new approaches to closing the fuel cycle. We have received member states’ requests for support in the field of uranium mining and we are currently involved in activities in Mongolia and Brazil. The Director General has decided to delegate to our department some of the front end uranium supply activities to increase the technical level, and so our Nuclear Fuel Cycle and Waste Technology Division is now responsible for developing the fuel bank which is intended to ensure supplies of low-enriched uranium (LEU) as a last resort in case of market disruption.

**JP: Where will the bank be sited?**

**AB:** Kazakhstan has offered to host the fuel bank, and Russia has already established a special LEU reserve which is available to all member states in the event of supply problems. However, this is not just about specific countries like Kazakhstan or Russia, or proposals put forward by other countries such as the UK; it is important to establish a system and a framework for multilateral international fuel cycle services.

**JP: Does this approach also include the back end of the fuel cycle?**

**AB:** Indeed, the back-end must not be forgotten. There are many problems in this area and the Agency must help member states to have enough information to make knowledgeable decisions on spent fuel and nuclear waste management that serve their national interests. We have good networks and database tools on spent fuel, nuclear waste and special technologies. We support newcomer countries in this area in obtaining objective information and shared experiences from other countries. Our main task is to facilitate this work together with other IAEA departments very actively.

**JP: You mentioned INPRO; tell us more about this activity;**

**AB:** I consider INPRO to be one of the key intellectual activities of the Department of Nuclear Energy. The objective of this project is to support the safe, sustainable, economic and proliferation-resistant use of nuclear technology to meet the global energy needs of the 21st century. Thirty-four IAEA member states and the EC are INPRO members; Egypt joined just a few weeks ago. INPRO is very different from when it started in 2000. Initially the focus was on developing a methodology for assessing innovative nuclear energy systems, and that effort will continue through activities such as performing nuclear energy system assessments on multiple countries at their request; the INPRO methodology will be adapted to take into account recent developments and lessons learned from Fukushima. INPRO will also continue with its other activities, for example collaborative studies and projects on global nuclear energy scenarios and innovations in selected nuclear energy technologies and institutional arrangements.

**JP: Does INPRO co-operate with other international organisations?**

**AB:** INPRO supports the development of international co-operation. We believe it is important to co-operate with all initiatives related to nuclear energy. INPRO already has regular meetings with the Generation IV International Forum (GIF) which focuses on reactor technology, and in the near future we expect to start formal co-operation with the International Framework for Nuclear Energy Cooperation (IFNEC), which is a wider initiative. Such co-operation is one way to make progress in two key fields related to the comprehensive safety of nuclear energy: to facilitate the development of new innovative systems with inherent safety features; and to find new approaches to the fuel cycle and treatment of spent fuel.

**JP: Are there any new INPRO projects planned?**

**AB:** There are several new projects planned for the next biennium. For example, Russia has proposed to the Agency the possibility of providing the Multipurpose Fast Research Reactor (MBIR) site for international collaboration in the field of fast breeder reactor technology. The MBIR, which is to be built in Russia at the Research Institute of Atomic Reactors in Dimitrovgrad, is a high flux reactor specially designed for fundamental investigation into fast reactor technology and for the production of isotopes.

**JP: Has this project already begun?**

**AB:** We held a consultancy meeting at the IAEA and will have another one in Dimitrovgrad soon to discuss the need for increased international cooperation in the area of R&D for innovative nuclear reactor designs options and for a future new framework for international cooperation. This will help to ensure that new technologies are safer compared with present water cooled technologies. The MBIR could support all those countries seeking to investigate and design new safe reactor systems. It is a good idea but will take some years to realise. The Russian Federation is now looking to a completion date for the MBIR of around 2019 including the possibility of using some other facility initially to start the activity.
Czech Republic goes for nuclear expansion
Germany switches to foreign nuclear
Rosatom – confident of progress

FUKUSHIMA UPDATE
Cold shutdown in view
Huge task of decontamination
Newbuild funding to be used for reconstruction
AREVA offers to take spent fuel
Research a casualty of Fukushima
No progress on reactor restarts

IAEA adopts action plan
Nuclear exporters adopt
EU baseload will be nuclear and gas
Signs of a thaw on Iran
India holds firm to nuclear plans
Argentina launches Atucha II

Site selected for Finnish NPP
Bannerman in talks with China
China’s Kalahari bid targets Husub
Namibia forms JV for uranium
Toshiba buys Shaw’s Westinghouse stake
RWE and E.ON sell Urenco shares
Atom energomash expands

China’s Tianwan considers safety upgrades
Newbuild briefs

Upate for Sweden’s Oskarshamn-3
Plant operation briefs

EDF orders 44 steam generators
Russia re-organises turbine manufacture
Equipment briefs

EC gets early stress test results

WNA sees market unchanged by Fukushima
Hathor rejects Cameco bid
Kazatomprom stabilises uranium production
 Strike and unrest at Rosing
Uranium Corp acquires US properties
Licensing problems for First Uranium
Local support for Indian uranium mine
VostGOK struggles with mine funding

Rosatom – confident of progress
Germany switches to foreign nuclear

Fuel briefs
MONASITE processing suggested
US, Ukraine sign HEU deal

Dounreay returns foreign waste
SKB experts scrutinise Ignalina storage facility

American Centrifuge gets brief reprieve
SKB experts scrutinise Ignalina storage facility
US, Ukraine sign HEU deal
Monsite processing suggested
Fuel briefs

Dounreay returns foreign waste
US NRC freezes Yucca Mountain work
Waste briefs

Dounreay plans unveiled
Sellafield removes fuel from pond

US EPA approves Navajo Nation cleanup

EU-wide transport registration proposed
Growing interest in rare earth metals
US NPP could produce Mo-99

Small mPower reactor makes progress
Bacteria for uranium cleanup
New technology briefs

Russia plans fast reactor research centre
Research briefs

On the move

Uranium Mining and Resources in the US
Rolled-Royce moves to target civil nuclear reactor services market

Uranium Market Round up
Outage Watch
Carbon Market View
S&P’s Global Energy Indices
Competing fuels, power prices and carbon
Global Nuclear Capacity
Nuclear Business Share Prices
Events Calendar

In the move

Russia plans fast reactor research centre

Bacteria for uranium cleanup
New technology briefs

On the move

Uranium Market Round up
Outage Watch
Carbon Market View
S&P’s Global Energy Indices
Competing fuels, power prices and carbon
Global Nuclear Capacity
Nuclear Business Share Prices
Events Calendar

IHS McCloskey Nuclear Business
Senior Vice President IHS
Michael Dell
Publisher & Managing Editor
John Howland
John.howland@mccloskeycoal.com
Editorial Managing Editor
Scott Dendy
scott.dendy@mccloskeycoal.com
Editor
Judith Perera
judith.perera@mccloskeycoal.com
US Correspondent
Thecla Fabian
Marketing Manager
Alina Bacic
Sales and Subscriptions
Nicol Tame
rcolita.tame@mccloskeycoal.com
Production Manager
Emma Duncan
Production Assistant
Liam McEwan
production@mccloskeycoal.com
Editorial Address
IHS McCloskey
Unit 6, Rotherbrook Court
Petersfield, GU32 3QG, UK
Tel: +44 (0)1730 265 095

Published once a month
Annual subscription £1,075* (email only)
Annual subscription £1,200* (hard copy and email)
*Plus VAT where applicable
Published by IHS McCloskey

Registered Office
IHS Global Limited
Witworth Road
Bracknell, Berkshire, RG12 8FB, UK
mccloskeycoal.com