



## **PACATOM: Building Confidence and Enhancing Nuclear Transparency** by Ralph A. Cossa

The prospects of an increase in energy demand in the Asia-Pacific region, combined with the perceived need for energy security or self-sufficiency, have driven many countries to develop or at least contemplate the use of nuclear energy. This increased peaceful use of nuclear energy brings with it rising safety and non-proliferation concerns. Moreover, Asia-Pacific international cooperation in nuclear matters has been uncommon.

In order to address these concerns, the Council for Security Cooperation in the Asia Pacific (CSCAP) – a non-governmental organization linking together research institutes and security specialists from throughout the region – is conducting an investigation as to the feasibility of developing multilateral approaches toward ensuring the peaceful, safe use of nuclear energy. The purpose of this examination, conducted by CSCAP's international Working Group on Confidence and Security Building Measures (CSBMs), is to evaluate ways to increase nuclear safety and transparency and promote confidence among Asia-Pacific nations, while providing greater insight into regional nuclear-related concerns and potential acceptable solutions. Representatives from all the current and prospective nuclear energy users are currently participating in this CSCAP Working Group effort.

CSCAP's intended efforts in this field range from simple information gathering and dissemination on one end of the spectrum to examining the possibility of defining and promoting an international Asian or Pacific Atomic Energy Community (PACATOM) at the other. In between these two extremes are a variety of interim steps or measures that can address or alleviate regional nuclear energy-related concerns.

The PACATOM project is premised on the belief that multilateral confidence building measures aimed at increasing transparency and enhancing safeguards and individual assurances, if introduced at an early stage in the process, could help ensure that the anticipated expanded regional use of nuclear energy does not contribute to misunderstandings about the nuclear intentions of individual nations. At the same time, such measures promote nuclear safety and non-proliferation goals. It is further driven by the recognition that, even in the extremely unlikely event that no new nuclear reactors were built in Asia, safety and security concerns associated with current ongoing programs still need to be more effective.

The aim of the PACATOM project is neither to promote nor to discourage nuclear energy, but to ensure its safe use, first by highlighting regional concerns associated with its use and then by investigating whether multilateral confidence building efforts could help alleviate these concerns. At a minimum, CSCAP's efforts should contribute to a greater awareness among both the policy-making and nuclear energy

communities of regional concerns related to nuclear energy research and production.

The CSCAP PACATOM project is a work in progress. Working Group members continue to refine their approach and analysis while continuing their assessment of possible lessons learned from other regions. Neither the advisability and feasibility nor the form and composition of a formalized Asia-Pacific PACATOM institution have yet to be fully determined. However, the CSBM Working Group has identified six potential broad general areas of cooperation:

**Safety Cooperation.** Improved international cooperation for safety could offer many benefits. For example, crisis prevention efforts might focus on improved reactor and facility designs and on standardizing operating procedures. In addition, emergency response efforts might focus on common training programs, improved sharing of information in time of crisis, and regional response teams.

**Energy Cooperation.** Regional cooperation might be conducted under the auspices of a regional energy authority. One possibility would be to establish an energy distribution grid for member states that could supply, utilize, and distribute energy throughout the region. Another possibility would be to conduct joint research and development on all forms of energy sources, as well as on energy conservation and environmental protection.

**Research Cooperation.** A regional fund might be created to provide technical aid for joint research on medical, agricultural, and scientific applications of nuclear technologies. Such cooperation could augment existing technical assistance offered by the IAEA.

**Regional Safeguards.** Supplemental safeguards work could provide increased transparency about nuclear activity, especially since specific IAEA inspection results are not made public. However, any regional approach should encompass the IAEA and its inspections process as an integral partner.

**Managing the Front End of the Nuclear Fuel Cycle.** An Asian cooperative program might focus just on the acquisition of uranium and on the monitoring and disposal of spent fuels under high safety and environmental standards. It might also encompass means to use available plutonium for commercial energy purposes. One such approach would embrace the long-term plutonium economy, by creating common recycling facilities and enabling the accumulation, use, and reuse of plutonium stockpiles--whether nationally or by an international organization. An alternative approach would seek to work away from a plutonium economy, by burning and eliminating excess plutonium stocks by the MOX-option.

**Managing the Back End of the Nuclear Fuel Cycle.** What is left after nuclear fuel is consumed is a big problem. At a minimum, resources and research programs aimed at both short-term and long-term solutions might be pooled and more productively coordinated. Cooperation on temporary and *in situ* storage of spent fuel and wastes would be encouraged. Techniques of vitrification, transportation, and environmental protection could support this effort. Creation of a regional repository for spent fuel would be more ambitious and perhaps contentious, but could have a major positive impact in alleviating concerns over the safety and security of these materials.

Two of the areas listed above lend themselves best to multilateral cooperation from the Working Group's perspective. One is safety cooperation; it is the least contentious of the issues and much has already been accomplished. Many safety cooperation proposals are already on the table and the safety record of nuclear power industries in Asia is extremely good. Nonetheless, concern mounts about just how safe nuclear energy really is. As a result, Working Group will continue to pursue confidence building and transparency measures aimed both at making nuclear operations safer and at demonstrating to neighbors (domestically and internationally) that Asia Pacific nuclear power facilities are indeed safe.

The second area ripe for cooperation is managing the back end of the fuel cycle. Decisions about how to handle and store spent fuel and radioactive waste are among the most sensitive and contentious issues. Whether or not to reprocess spent fuel into plutonium is especially in question. The responsibility for spent fuel management rests first and foremost with the individual producers and national governments and the decision to reprocess is also an individual one. However, there are common problems in spent fuel management, and concerns about reprocessing are widespread and have serious potential security implications. As a result, the Working Group is examining various proposals and facilitating debate on back end problems.

In order to increase awareness of the many efforts already underway to promote nuclear energy cooperation, the Working Group intends to develop a comprehensive inventory of current organizations, programs, and initiatives that already address nuclear energy-related challenges and concerns, in order to create a comprehensive roadmap of what's already being done or proposed.

The Working Group is also undertaking a pilot program to develop, through a careful assessment of available technologies, a generic nuclear energy monitoring scheme that could then be presented to nuclear energy producers in the region for consideration on a voluntary basis. Nuclear energy specialists from throughout the region just completed the first of two workshops at the Cooperative Monitoring Center at Sandia National Labs, aimed at designing this generic monitoring system. The CSBM Working Group also intends to develop a generic Nuclear Energy White Paper (similar to our earlier Defense White Paper effort) to promote greater transparency among nuclear energy producers. The feasibility of establishing a "Statement of Principles Relating to Nuclear

Energy Research and Production in the Asia Pacific" is also being studied.

In sum, examination of nuclear energy-related issues in the Asia Pacific to date has reinforced the need for greater awareness among regional policy-makers regarding both the potential problems and the need for imaginative cooperative approaches toward addressing them. While the creation of a formal PACATOM institution appears to be premature, the states of the region, individually and collectively, must do more to deal with common problems, increase transparency and promote confidence.

*This PacNet draws from the Executive Summary of a September 1998 Pacific Forum Occasional Paper by Ralph A. Cossa, Executive Director, which reviews progress on the PACATOM Project to date. This Report is available upon request from the Pacific Forum.*