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An Asia-Pacific Nuclear Energy Community

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Summary

The Fukushima accident has highlighted the need for stronger international governance and closer international cooperation on nuclear safety and security. There is also a continuing need to avoid proliferation risk from the growth in nuclear energy programs, particularly the spread of proliferation-sensitive technologies. Agreement on global solutions will take some time, but practical steps meanwhile can be taken at a regional level. An intergovernmental Asia-Pacific nuclear energy community could facilitate high-level consultation on nuclear plans and programs; regional cooperation and promotion of best practice in safeguards, security and safety; and collaborative arrangements for energy security and fuel cycle management. It is timely for governments to start considering the value-added of such a community, both internally and at regional ministerial and leaders' meetings.[1]

Why a nuclear energy community is needed

1. The concept of an Asia-Pacific nuclear energy community has been under discussion for many years. Historically, the concept has been aimed at non-proliferation and security of fuel supply. Ideas have ranged from a general framework for cooperation, to a treaty-based system along the lines of the European Atomic Energy Community (Euratom). The concept never gained traction, presumably because in the past governments saw no practical need for such a community. As a consequence, concrete objectives for such an institution have not been elaborated.

2. Circumstances are changing, and today the concept of a regional nuclear energy community may be becoming more relevant. The Asian region is a major growth area for nuclear energy, and states in the region are increasingly concerned about the need for assurance that nuclear programs in neighbouring states meet the highest standards of nuclear safety, security and non-proliferation. As the size and number of nuclear programs grow, the level of concern – even suspicion and mistrust – could also grow unless mechanisms are put in place to address potential problem areas.

3. The Fukushima accident has highlighted the need for stronger international governance and closer international cooperation on nuclear safety, and by extension nuclear security. Nuclear programs cannot be regarded as a solely national concern. If major accidents occur they will have international impact – if not on public health, then certainly on public confidence in nuclear energy.

4. If a state with the experience and resources of Japan has had difficulties in ensuring the highest level of safety, what are the implications for those commencing, or substantially expanding, nuclear power programs? There is a strong mutual interest in ensuring high levels of confidence and vigilance through in-depth international consultation, information-sharing, cooperation and experience-sharing on nuclear safety. The Nuclear Security Summit process is looking at similar issues with regard to nuclear security.

5. At the same time, there is increasing awareness of the need to avoid proliferation risk from the growth in nuclear programs and par-

1 An earlier version of this paper was circulated as an APLN Discussion Paper in February 2013.

ticularly the spread of proliferation-sensitive technologies. New international arrangements are being discussed, in the International Framework for Nuclear Energy Cooperation (IFNEC) and elsewhere, to ensure that states using nuclear energy have long-term security of supply, assistance with fuel management, and cooperation to ensure best practice in facility operations. These issues are of global importance. However, it may be possible to progress practical steps more expeditiously at a regional level.

6. Reflecting a number of these considerations, the APEC Energy Ministerial Meeting in St Petersburg on 24-25 June 2012 recognized the importance of safe and secure uses of peaceful nuclear energy, and called on economies with nuclear power programs to share expertise, knowledge and best practices at the request of economies interested in developing such programs. Energy ministers instructed APEC's Energy Working Group to prepare a list of measures and recommendations for organizing regional cooperation in the peaceful use of nuclear energy.

7. In light of these developments it is timely to look afresh at the concept of an Asia-Pacific nuclear energy community.

Euratom and Other Regional Treaties

8. The European Atomic Energy Community was established by the Euratom Treaty of 1957. Key objectives of the Euratom Treaty included:

- promotion of nuclear research;
- establishing uniform standards for nuclear safety;
- facilitating investment, establishing a common market in specialized materials, equipment and employment;
- supply assurances – through Community right to ownership of nuclear materials and the operation of the Euratom Supply Agency; and
- safeguards – through the Euratom Safeguards Office (now part of the European Commission).

9. A key feature of Euratom is that member states have vested it with executive authority, for example, to make and enforce decisions. Examples of Euratom's powers include the ownership of nuclear material in the Community, and the imposition of sanctions for safeguards breaches. The Euratom Treaty provided for a European Parliament, a Council, a Commission and a Court of Justice to carry out tasks under the Treaty. These bodies have since been subsumed into broader European Union institutions.

10. Euratom was established in a particular historical context. It was an important building block in the process of European integration, a broader process addressing recovery from a devastating war and establishing institutions to prevent future wars between European states. This process led to the creation of the European Community and subsequently the European Union. Though the same imperatives for political and economic integration might not apply today in the Asia-Pacific region, there is a good deal of activity in this direction – examples include APEC, the East Asia Summit, and the planned introduction of the ASEAN Economic Community in 2015. While an Asia-Pacific nuclear energy community should be approached as an objective in its own right, to meet needs in the nuclear sphere, such a community could become an important building block in the evolution of more broad based and substantial regional cooperation, just as Euratom was.

11. No other comparable regional treaties deal with the same range of issues as the Euratom Treaty. The other relevant regional treaties focus on nuclear-weapon-free zones and safeguards – see the Treaties of Tlatelolco (Latin America and the Caribbean), Rarotonga (South Pacific), Bangkok (South-East Asia), Pelindaba (Africa) and Semipalatinsk (Central Asia), and the Guadalajara Agreement establishing safeguards arrangements between Argentina and Brazil. Only the Treaty of Pelindaba provides for promotion of regional cooperation programs on nuclear energy, but not in any specific way, and with no explicit decision-making authority.

Existing Nuclear Institutions in the Asia-Pacific

12. There are already several regional institutions dealing with nuclear matters. As their names suggest, they mainly address specific areas of activity. None of them is treaty-based, hence none has executive authority.

13. *Forum for Nuclear Cooperation in Asia (FNCA).* A Japanese-led cooperation framework for peaceful use of nuclear technology in Asia. The cooperation consists of annual ministerial meetings and a number of project activities in the areas of radiation utilization, research reac-

tor utilisation, nuclear safety and nuclear infrastructure. The participants are Australia, Bangladesh, China, Indonesia, Japan, Kazakhstan, Republic of Korea, Malaysia, Mongolia, Philippines, Thailand and Vietnam.

14. *Asia-Pacific Regional Cooperative Agreement (RCA).* An intergovernmental agreement under the auspices of the International Atomic Energy Agency (IAEA) to promote and coordinate R&D and training projects in nuclear science and technology. The members are Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Vietnam.

15. *Asia Nuclear Safety Network (ANSN).* A cooperative network in association with the IAEA to pool, analyse and share nuclear safety information, existing and new knowledge and practical experience among the participating countries. The participants are Bangladesh, China, Indonesia, Japan, Kazakhstan, Republic of Korea, Malaysia, Philippines, Singapore, Thailand and Vietnam. Australia, France, Germany and the USA are ANSN supporting countries. Pakistan is an associated country.

16. *Asia-Pacific Safeguards Network (APSN).* An informal association of national authorities and agencies responsible for safeguards matters, with the objective of improving the quality, effectiveness and efficiency of safeguards implementation in the Asia-Pacific region. Participating organizations come from Australia, Canada, China, Indonesia, Japan, Republic of Korea, New Zealand, Philippines, Russia, Singapore, Thailand, USA and Vietnam. The IAEA and the EU are observers.

Possible Roles for an Asia-Pacific Nuclear Energy Community

High-level consultation on planned nuclear programs and current operations

17. In the light of Fukushima, the establishment of a high-level consultative process could provide transparency, assurance and confidence about the conduct of nuclear programs. Amongst other things, this could enable states to share information on their planned nuclear programs and current operations, including safety precautions and emergency preparedness, and to provide the opportunity for others in the region to seek further information, to express their views, and to share experience.

Developing mechanisms for assuring best practice in nuclear safeguards, safety and security and safeguards ("3-Ss")

18. *Safeguards*. Euratom predated the NPT and the IAEA safeguards system. There is no need today to establish a regional safeguards system. Under a regional framework primary responsibility for safeguards would be left to the IAEA, as is the case under the various nuclear-weapon-free zone treaties. However, there is a need for collaborative arrangements for sharing of expertise, capacity-building and training, and developing further the work of the Asia-Pacific Safeguards Network.

19. *Nuclear safety.* The principal international treaty in this area, the Nuclear Safety Convention, lacks a mechanism for ensuring uniform standards and best practice. Regional arrangements could provide transparency and assurance that international best practice is being followed. As with safeguards, regional collaboration could promote and facilitate the sharing of expertise, capacity-building, training and so on.

20. *Nuclear security.* The situation is similar to nuclear safety – the principal international treaty, the Convention on the Physical Protection of Nuclear Material, lacks any mechanism for ensuring uniform standards and best practice. Here too regional arrangements could provide transparency and assurance that international best practice is being followed, and regional collaboration could promote and facilitate the sharing of expertise, capacity-building, training, and the like.

Capacity-building

21. In addition to capacity-building in the "3-Ss", there is a need for capacity-building across the range of skills and specialisations required to establish and safely operate a nuclear program. Newcomer states need to be aware of and to utilise the experiences of nuclear power generating states in preparing for national infrastructure for introducing their first nuclear power plants, through regional collaboration in addition to information and guidance available from the IAEA and industry. Lessons learned from states with a similar cultural background, in both positive and negative aspects, can be highly valuable.

Nuclear fuel cycle collaboration

22. It is especially important to take action to address non-proliferation and disarmament objectives. Regional fuel cycle collaboration could encompass matters such as security of supply arrangements for nuclear material and fuel cycle services (uranium supply, uranium conversion, enrichment, fuel fabrication, and reprocessing); multination involvement in the management of proliferation-sensitive stages of the fuel cycle; and collaboration on the management of spent fuel and high-level wastes.

23. A number of these topics are interlinked. For example, cooperative arrangements for security of supply, fuel cycle services and spent fuel management could obviate the operation of national programs in proliferation-sensitive technologies, thereby benefiting non-proliferation and disarmament objectives.

Collaborative research programs

24. Regional collaboration in nuclear science and nuclear applications could take further existing programs for the sharing of research facilities and the like. An area of particular interest to a number of states in the region is the viability of advanced technologies to eliminate long-lived high-level wastes through spent fuel recycling. There could be economic as well as non-proliferation benefits in conducting such R&D on a regional basis through multi-nation programs and facilities.

Industry issues

25. Regional arrangements could include harmonization of regulatory requirements to facilitate investment, trade and professional mobility.

Regional power supply arrangements

26. Where practicable, joint ownership and operation of nuclear power stations and supply grids could be cost-effective and optimize use of scarce expertise.

Relationship with the IAEA?

27. The IAEA has global responsibilities for a wide range of functions including nuclear safeguards, nuclear safety, nuclear security, and technical cooperation. It is essential that any new institution should not cut across or duplicate the IAEA's activities. It is not envisaged that an Asia-Pacific nuclear energy community would have any inspection function, in safeguards, safety or security. Rather, the community could be a valuable complement to the IAEA's work, through the promotion of regional collaboration, capacity-building, experience-sharing, professional standards, and the like. In particular, development of a regional approach to the nuclear fuel cycle would make an important contribution to the IAEA's non-proliferation objectives.

Membership and Authority

28. A fundamental issue to be addressed is the geographic extent of an Asia-Pacific nuclear energy community. Previous concepts have envisaged the inclusion of North Asia, South East Asia and Australasia. For consideration is whether the community should also include Central Asia and South Asia. Inclusion of South Asia would bring particular challenges, not the least being the presence of two nuclear-armed states, so this might be considered too difficult at the outset. On the other hand, participation by these states could make an important contribution to confidence-building between them.

29. Another important issue is the possible involvement of the United States and Russia. The support of these states would be essential for the success of the nuclear energy community. Membership of the community could be based on membership of the East Asia Summit, which would have the effect of including the US and Russia.[2]

30. A fundamental issue is whether, as with Euratom, the community would have decision-making authority, that is, to make decisions that are binding on the parties. If the community does not have such authority, it will not be as effective in areas such as non-proliferation, security of supply, and safety and security assurances.

31. To have weight and utility, a new Asia-Pacific nuclear energy community would need to be a higher-level body than the specialized institutions that exist now – both in subject matter (for example, dealing with security of supply, fuel cycle management, safety and security assurances) and in participation (desirably involving government leaders as well as ministers). A nuclear energy community could complement other steps being taken towards

2. The East Asia Summit comprises Australia, Brunei, Cambodia, China, India, Indonesia, Japan, Republic of Korea, Laos, Malaysia, Myanmar, New Zealand, Philippines, Russia, Singapore, Thailand, USA and Vietnam.

greater regional integration, and become an important building block in this larger process.

Conclusions and Next Steps

32. An Asia-Pacific nuclear energy community could add value by enabling and encouraging high-level consultation on nuclear plans and programs; regional cooperation and promotion of best practice in safeguards, security and safety (the "3-Ss"); and collaborative arrangements for energy security and fuel cycle management, including operation of sensitive stages of the fuel cycle.

33. It could also ensure transparency and build confidence in nuclear programs in the region. For example, the community could provide assurance to states with nuclear programs, and their publics – as well as neighbouring states – that they are in fact meeting best practice in nuclear safety and security. In particular, the community could take effective action to address non-proliferation and disarmament objectives.

34. Governments need to focus on how an Asia-Pacific nuclear energy community could work to their mutual benefit. They could usefully initiate studies by officials or academic institutions and think tanks to address the issues discussed in this paper, including:

- Which areas require or would benefit from joint action amongst regional governments?
- What is needed beyond the existing regional institutions, and how would these be accommodated in a new framework?
- What might be the form of the new institution – a treaty, or initially something less formal?
- Are governments prepared to vest executive authority in a regional organisation if they can see the benefit of this?

35. Governments may also consider initiating discussion of the nuclear energy community concept in forums such as the East Asia Summit, APEC Energy Ministerial Meetings, ASEAN and FNCA.

The Author

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APLN and CNND

The **Asia-Pacific Leadership Network (APLN)** comprises over thirty former senior political, diplomatic and military leaders from fourteen countries around the region including nuclear-weapons possessing states China, India and Pakistan. The objective of the group, convened by former Australian Foreign Minister and President Emeritus of the International Crisis Group Gareth Evans, is to inform and energize public opinion, and especially high-level policymakers, to take seriously the very real threats posed by nuclear weapons, and do everything possible to achieve a world in which they are contained, diminished and ultimately eliminated. See further http://apln.anu.edu.au

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