AJISS-Commentary

The Association of Japanese Institutes of Strategic Studies

IIPS
Institute for International Policy Studies

The Japan Forum on International Relations

JIIA
The Japan Institute of International Affairs (Secretariat)

RIPS
Research Institute for Peace and Security

Editor:

Akio Watanabe

Editorial Board:

Kenichi Ito
Masashi Nishihara
Seki Tomoda
Taizo Yakushiji

Online Publisher:

Yukio Satoh
President, JIIA

No.26. 21 February 2008

ATOMS FOR THE SUSTAINABLE FUTURE:

Utilization of Nuclear Energy as a Way to Cope with Energy and Environmental Challenges

Tetsuya Endo

Nuclear Renaissance

The world now faces two major challenges for the sustainability of growth: energy security and global warming. According to an estimate by the International Energy Agency, world demand for primary energy will increase 53% by 2030. For example, it is predicted that meeting the demand for energy in Asia will pose serious challenges not only for individual countries – in particular, energy-hungry China and India – but also for the

The views expressed in this piece are the author's own and should not be attributed to The Association of Japanese Institutes of Strategic Studies.

region as a whole. In Africa, the Middle East and elsewhere, plans for and expressions of interest in nuclear energy have been expanding. In the midst of rising oil prices, expectations are growing that nuclear energy will fill the gap between energy demand and supply.

In the area of global warming, the Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) predicts that the global temperature will increase by 2.4 to 6.4 degrees Celsius by the end of the 21st century if fossil-fuel dependent economic growth is maintained. It is now universally recognized that the reduction of greenhouse gas (GHG) emissions is a matter of urgency, and necessitates seeking viable, reliable alternative sources of energy. In this sense, nuclear energy can be expected to contribute to global efforts to cope with the global warming problem as its carbon dioxide emissions are much smaller than those of fossil sources. Among major energy sources, nuclear power is one of the most effective in reducing GHG emissions.

Given these circumstances, there has been a resurgence in the worldwide need to promote nuclear energy that may be termed the “Nuclear Renaissance.”

Opportunities and Risks

Nuclear energy has two facets. When it is used for peaceful purposes such as power generation, it can make a contribution to the betterment of the quality of life. However, it can also be used for military or criminal purposes. There are both great opportunities and great risks in expanding the use of nuclear energy.

The world has had to live for more than sixty years with the serious threat of nuclear devastation, a threat that is the result of the huge number of nuclear weapons that could destroy the earth several times over. Even as this danger continues, we also face rising nuclear proliferation threats caused by the diversion of peaceful nuclear programs to military use and withdrawals from international non-proliferation treaties and agreements, as well as the threats of nuclear terrorism and thefts of or illicit trade in nuclear materials by non-state actors.

Our principal challenge is to establish universal principles for the promotion of nuclear energy to contribute to sustainable growth in the global economy, to solve global warming problems, and to meet energy security needs, in balance with furthering efforts to reduce the risks posed by the threats of nuclear proliferation, nuclear terrorism, and existing nuclear weapons. We also need to remember that the safety of nuclear activities has become an increasingly important element in maintaining the credibility and sustainability of nuclear energy activities.

Based on such perceptions, a taskforce organized by the Japan Institute of International Affairs submitted on January 9 to Japanese Foreign Minister Masahiko Komura a policy report calling for a 'balanced approach' to nuclear energy, one that would promote nuclear energy while adequately and effectively addressing various nuclear risks. It is our hope that the Japanese government will take heed of our recommendations as it prepares energy and environmental policies for the G8 Summit that it will be hosting this summer in Toyako, Hokkaido. The policy report contains 13 recommendations, ranging from a proposal to reform financial mechanisms for nuclear projects to disarmament measures. They all consider threat reductions and non-proliferation as indispensable. The rest of this essay addresses the recommendations concerning the peaceful use of nuclear energy, which, if handed wrongly, could undermine efforts to make the world safer from nuclear threats.

"Three S's" for the Peaceful and Environmentally-Friendly Use of Nuclear Energy

In promoting nuclear energy under the present circumstances, it is extremely important for states to take into account: a) security against terrorist activities; b) safe operation of nuclear energy facilities; c) safeguards against nuclear proliferation. We must take a balanced approach toward strengthening the "Three S's" (Safety, Security, and Safeguards) and promoting the peaceful use of nuclear energy in an appropriate, effective manner. The "Three S's" would provide a

useful conceptual framework to comprehensively deal with nuclear risks while pursuing safe and secure nuclear activities.

In addition, nuclear disarmament should be further promoted. Promoting nuclear disarmament would strengthen the norms of the international non-proliferation regime, and thus it would encourage states to engage in global non-proliferation efforts. We believe that, in combination with strengthened transparency, respecting this “Three S’s” concept and sincerely encouraging nuclear disarmament are essential in helping nuclear energy gain universal legitimacy and confidence.

In the meantime, it is also important to develop mechanisms for assisting the development of nuclear power projects. Currently, there is no incentive or mechanism to facilitate the utilization of nuclear energy for environmental purposes, even though nuclear energy is quite effective in terms of reducing CO_2 emissions. Such discrimination against nuclear energy might undermine international efforts to cope with global warming. We urge the international community to acknowledge that nuclear energy would be an effective way to help contain the increase of CO_2 emissions. We back the creation of a policy mechanism to systematically incorporate the promotion of nuclear energy in the efforts to tackle global warming in the new round of negotiations.

Nuclear power generation also needs large initial capital investments and requires long payback periods. Developing countries need to attract international capital for their nuclear programs. Therefore, the international community should offer innovative financial mechanisms that would facilitate private and public investment for the construction of nuclear reactors. Other existing financial mechanisms such as World Bank loans and OECD guidelines for export credit, which currently discriminate against nuclear projects, should be made available for nuclear power projects. It may also be worth examining the linking of financial support through the mechanisms mentioned above with the fulfillment of the “Three S’s” guidelines since this would contribute to enhancing the safety and security of

nuclear activities as well as non-proliferation.

Conclusion

As mentioned at the outset of this essay, we are facing serious, imminent challenges in energy security and global warming. Nuclear energy has great potential in coping with such challenges if it is properly introduced and operated. In particular, heightened risks of nuclear plant accidents, nuclear terrorism, and nuclear proliferation should not be tolerated in exchange for dealing with global warming and energy security concerns.

Although it is extremely difficult to discover a panacea that addresses all of these concerns, we believe that it is not impossible, and we have to strive for such a solution for the sake of all future generations. That is the very purpose of the upcoming G8 Summit.

Tetsuya Endo served as Chairman of the Taskforce on Atoms for the Sustainable Future organized by The Japan Institute of International Affairs. This commentary is an abbreviated version of the recommendations issued by the taskforce in January 2008.