

Energy Security and Sustainable Development in Northeast Asia: Prospects for Cooperative Policies

(About the ERINA's project and the international workshop in Tainai, Niigata)

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On June 26-28, the Tainai Park Hotel, located near the ski resort of Kurokawa village, Niigata, was host to an international academic conference organized by the Economic Research Institute for Northeast Asia on the subject of "Energy Security and Sustainable Development in Northeast Asia: Prospects for Cooperative Policies." Twenty panelists from China, Japan, Russia and the United States, who were invited to represent such international organizations as the International Energy Agency and the Asia-Pacific Energy Research Center, well-known research centers, including the Atlantic Council of the United States, the James Baker Institute for Public Policy, Mitsubishi Research Institute-to name only a few of them¹-and also NGOs such as the Northeast Asia Gas & Pipeline Forum participated in the meeting along with members of ERINA.

This workshop marked the opening of a two-year-long project initiated by ERINA with the participation of the Northeast Asia Economic Forum (Honolulu, Hawaii) and the Monterey Institute of International Studies (Monterey, California).² Funded by ERINA and the Center for Global Partnership of the Japan Foundation, the project aims at combining multilateral dialogue with collaborative research and network development, and involves experts from various fields, both researchers and practitioners.

Preparing for this project ERINA was aware that interest in the issues of energy security and sustainable development continues to grow worldwide. Studies, forums and other professional efforts undertaken by national and international agencies, universities, major research centers, and non-governmental organizations study in detail numerous and complex problems in these and related fields.

One of the key issues under examination is natural gas, because of its wide range of applications and environmental advantages. Potentially, increased reliance on natural gas would reduce the need for oil imports and the scale of coal consumption. Increased natural gas production and natural gas trade will also lead to the diversification of supplies.

Renewable energy and new, cleaner technologies that could enhance energy efficiency, reduce atmospheric pollution and ultimately change the

structure of energy use are a major focus of debate, while yet another critical problem is the growing consumption of oil in Asia and the intensifying dependence on oil imports from the Persian Gulf.

For "island" economies with little or no fossil fuel resources, such as Japan, the Republic of Korea (South Korea) and Taiwan, energy security means a host of troubling issues. In short, the "five highs" represent both their long-standing and more recent concerns: high dependence on imported fossil fuels; high dependence on oil; high dependence on oil from the Middle East; high dependence on long-distance sea routes; and high projected demand for energy on the part of China and India.

It is important to recognize that the economies of Pacific Asia and India will drive the expansion in energy demand, replacing North America as the leading energy consumption region. By 2015, Asia is likely to account for more than half of the world's total increase in energy demand. China and India will see especially dramatic increases in energy consumption and by 2015 only one-tenth of Persian Gulf oil will be directed to western markets, while three-quarters will go to Asia. In the next fifteen years, natural gas consumption will increase more rapidly than that of any other energy source, doubling worldwide and tripling in Asia.

Within this larger framework, the Northeast Asian subregion encompasses the exceptionally large energy markets of China, Japan and South Korea and represents one of the leading energy-consuming regions in the world, heavily dependent on energy imports. Japan is the world's fourth largest energy consumer and second largest energy importer (after the United States). South Korea is the fourth largest oil importer and the second largest importer of liquefied natural gas (LNG) after Japan. Two decades from now, China's imports of energy could be as high as its current energy production. China is the world's largest producer and consumer of coal. On the other hand, its dependence on imports of energy, including oil and natural gas is bound to grow dramatically. China's electricity demand more than doubled in the 1990s and is likely to quadruple by 2020.

The project

In this ocean of complex issues and trends already

¹ See the list of the workshop participants and their affiliation at the end of this overview.

² The workshop held in Tainai continues ERINA's effort to study prospects for regional cooperation in the energy sector. In December 1999, the Institute, also with support from the Japan Foundation, organized a similar workshop. Then the main attention was focused on Japan-Russia relations, interests, and policies in the field of energy. Please access the workshop report at <http://www.erina.or.jp/publication/Energy.htm>

decently covered by well established organizations, finding a new direction for a meaningful dialogue is a challenge requiring a great deal of effort. The project undertaken by ERINA aims at policies, highlighting the benefits of cooperation in the energy-environment realm.

The ultimate goal is to lift the "strategic sights" of governments above the limits of national policies and prepare a path for them through the complexities of specific cross-border projects. What is needed is a 'vision' for a cooperation framework and policy coordination that encompasses the energy-development-environment 'triad.' The hope is that ultimately the participating institutions and experts will propose a shared vision of and approaches to an optimum mix of "gives and takes" in the energy-environment realm, in which the economies of the subregion today operate almost exclusively independently.

Northeast Asia is part of the larger Asia-Pacific region. However, this subregion is not a political, economic or security community. The name of the subregion serves mostly as a geographical referent and, as mentioned at the workshop, in the United States, for example, this term is not well known except in the defense community. On the other hand, the Asia Pacific Economic Cooperation (APEC) forum now encompasses 21 economies, including those that constitute the subregion: China, Taiwan (Chinese Taipei), Hong Kong, Japan, Republic of Korea (South Korea), and Russia. Reportedly, in November 2000, when the APEC's leaders were invited to Brunei for their annual informal summit, the idea of encouraging the Democratic People's Republic of Korea (North Korea) to participate in the working groups was discussed.

The main pillar of the project's concept is the expectation that the vital interests of the economies of the subregion overlap, driven by aspirations towards greater energy security, development and prosperity, political stability and environmental safety, and the belief that this could constitute a framework for cooperative engagement, cross-border and multilateral solutions in the energy sector. Indeed, certain areas within Northeast Asia possesses vast resources of energy, which until very recently were largely disconnected from the huge regional markets. Russia, the third world's largest consumer of energy by itself, possesses in its eastern regions rich coal, oil, natural gas and hydro resources. In theory, Russia could contend for significant shares of energy markets in Japan, South Korea and China.

Economies such as Japan, South Korea and recently China possess capital resources currently invested in energy projects in distant corners of the planet. Also, the technologies, engineering skills and managerial experience critical to the success of advanced energy ventures are also available, but have rarely been applied in this area in a multilateral mode. The exceptions are limited to the Sakhalin oil and gas projects and the Korean Peninsula Energy Development Organization, which highlight the symbiosis of energy needs and security concerns.

On the other hand, this subregion is also unique to the world of energy because it has a low natural gas penetration rate, and transportation and distribution infrastructure is limited or yet to be assembled. Russia, together with the Middle East, accounts for three-quarters of the world's known gas reserves, so natural gas trade is possible and could lead to the diversification of supplies. It is assumed that imports via a pipeline would promote diversification in modes of transportation, allowing gas-to-gas competition and eventually an expansion in the use of gas.

Various options for cross-border natural gas pipelines are under discussion. The problem is that the price tag of these projects is very high, improvements in the investment climate are still inadequate, and markets are neither easily accessible nor sufficiently secure to justify huge investments. Moreover, many of these cross-border projects require multilateral financing and concerted implementation efforts. The worst, however, is the lack of a long-term, comprehensive, export-oriented strategy that enables implementation as well as partnership and consistency in negotiations.

All these make the constituent economies a unique case study for observing both the domestic political hurdles and external factors impeding cross-border cooperation in the energy sector. Obstacles and sources of uncertainty are wide-ranging and yet to be fully accounted for and analyzed. These difficulties, at the same time, amplify the necessity to work together to obtain the economic and political benefits of cooperation.

In summary, the project's main focus is on "policies" linked to energy security, economic needs, environmental protection, and available, possible, cooperative solutions to current and future challenges. With the Tainai workshop, the project participants began to review current thinking on the subject, identifying the main players, organizations and institutions and their attitudes, including those concerned with the reduction of energy-related environmental impacts. The near-term goal is to catalog the areas and principles for consensus building on how to appraise and share the benefits of cooperation in the energy sector, how to advocate cross-border energy projects as efficient tools of economic development, factors of stable and cost-effective energy supply and cohesive confidence-building devices, and how to reconcile energy use and environmental protection in the area. Yet another objective is to assess prospects for cooperative approaches to energy security and institutional frameworks, such as the "Northeast Asian Energy Forum."³

The Workshop

From the outset it was expected that the participants would first review prospects, policies and impediments to promoting greater energy security for individual economies. Secondly, the goal of the workshop was to review the prospects for reconciling expanding energy use driven by economic development with environmental constraints.

During the opening session of the workshop on *Energy Security for Northeast Asia*, papers were delivered

by Amy Jaffe of the Baker Institute, Rice University ("Asia and the World of Energy"), and Tatsuiro Suzuki of the Central Research Institute of the Electric Power Industry ("A Comprehensive Concept of Energy Security and New Energy Policy for Japan").

Both speakers emphasized that policy landscape and security perceptions are changing, allowing new approaches to issues of vital national importance such as energy supply stability, an expanded choice of fuels and new directions for imports. In addition, Amy Jaffe offered the following ideas in answering the question "What can be done for the future of energy cooperation?":

- Building a network of personal relationships
- Establishing a dialogue that transcends not only national borders but also professions, disciplines, and institutions
- Creating an ethos of consultation among traditionally suspicious governments
- Sharing resources in a coordinated fashion rather than acting alone, with the Sakhalin projects and the dialogue focusing on Kovyta natural gas resources representing a stepping stone
- Research efforts aimed at developing joint strategies for the conservation, stockpiling and development of alternative energy sources.

She also noted that energy resource availability has traditionally been discussed in terms of its potential for conflict, with countries competing for diminishing oil supplies and prices rising. However, this is an unnecessarily pessimistic view and energy could serve as a unifying factor - the question is how to make it available to all on a long-term basis and at reasonable prices. Diversification in fuels and the origin of supplies makes offshore and inland resources of natural gas and oil, including those in Eastern Russia, particularly attractive. Cooperation in the development and utilization of these resources would enhance energy security and, at the same time, could reduce energy-related uncertainties. As a factor of interdependence, energy needs could strengthen security.

Tatsuiro Suzuki discussed two groups of issues, including "building blocks" for comprehensive energy security and also possible directions for changes in Japan's energy policy. He emphasized that traditional concepts of energy security have focused on the long-term risk of oil depletion and the short-term risk of oil supply disruption. With the oil crises, importers were trying to shift away from oil, particularly from supplies originating in the Middle East, and promoted diversification to nuclear power, coal and natural gas. However, today a new paradigm is needed to deal with energy security issues.

A review of Japan's energy policy will be completed

in 2003 and its energy security policy is already moving beyond national borders, from energy independence towards interdependence by design. If the Japanese energy market could be restructured, the expansion of natural gas could take place on a large-scale. This would, however, require further deregulation of energy markets and there are fears that this could compromise energy security and adversely affect the environment.

Cleaner energy options and efforts aimed at promoting a comprehensive and lasting energy-environment regime were the topics of the second session entitled *Development-Energy-Environment 'Trilemma'*. The papers were presented by Norio Ehara of the International Energy Agency ("World Energy Outlook and Challenges for Sustainable Energy Future") and Fengqi Zhou, Energy Research Institute, State Development Planning Commission ("Environmental Protection and Natural Gas in China").

The first speaker mentioned that fast-growing energy demand in Asia's non-OECD economies, in particular China and India, requires a cooperative approach in enhancing energy security and promoting sustainable development by safeguarding energy supplies through diversification and coordinating response mechanisms. He identified major challenges related to the sustainability of energy use in developing countries, providing examples derived from China's realities. However, not only for developing but also for developed economies, the transition to a sustainable energy will be complex and gradual, depending on changes in the structure of the energy sector, and behaviour in societies and economies. Sustainable development is dependent upon balancing the interplay of policies to accomplish economic, environmental and social needs.

In the next two decades China will be the world leader in expanding power production. Cumulative investments in the electric power industry are estimated at hundreds of billions of dollars, with priority given to coal. Coal-based electricity generation will more than double compared with current levels. It is expected, however, that an increasing environmental awareness of the costs of pollution from coal, the need for improved economic efficiency and a desire to diversify energy sources will compel China to change its policy of predominant reliance on coal.

The second speaker provided an extensive outline of China's atmospheric environment, including cities and provinces as well as coal-related forms of air pollution such as acid rain. It was obvious from this analysis that China needs to develop natural gas from domestic sources and consider importing it from external sources, including those in Siberia and Far Eastern Russia. The natural gas share in primary energy consumption in

³ The recent NIRA study proposes the establishment of a non-governmental "Northeast Asia Energy-Environment Forum" that would serve as the focal point of international dialogue concerning energy security and environmental issues in the region, with its discussions communicated to each member country. The proposal suggests that the Forum should be empowered to discuss not only the core issues of energy and environment but also such associated issues as investment funds and technology development and transfer. See *Hokutoajia Enerugii-Kankyo Kyodotai e no Chosen*, Tokyo: National Institute for Research Advancement, 2001.

China is less than 3%. However, between 2002 and 2009, China plans to build a 4,000 kilometer-long West-East pipeline worth US\$18-19 billion, linking the Tarim Basin and Shanghai and supplying gas to nine provinces and some major cities. The program will promote the development of Xinjiang and areas in the central and western regions of China, increasing employment opportunities and bringing economic and social benefits.

Also, the wider use of natural gas through imports from Russia, Kazakhstan and other sources requires extensive national and regional distribution infrastructure. Because of the climate conditions and a shortage of capital, the exploitation rate is very low and confirmed reserves are concentrated in Sakhalin and the Veliuy River basin in Yakutia.⁴ The production of natural gas amounted to 1.8 billion cubic meters in 1985 and increased to about 3.3 billion cubic meters in the 1990s, while the existing infrastructure can only transport natural gas within a limited range. Moreover, the implementation of natural gas projects in Eastern Russia is mainly determined by foreign companies. The investment requirements for export oriented projects are estimated at US\$40~70 billion. It is expected that only after 2010, could about 20 billion cubic meters of natural gas be exported from Eastern Siberia to China, South Korea and Japan.

During the third session on *China's Energy Needs and Asia*, Daojiong Zha of the International University of Japan spoke about electricity industry governance in China. The second paper (by Kang Wu, East-West Center) addressed energy security and the roles of Asia's leading oil importers, including China and India.

The problem of governance in the energy sector is important because the project aims to analyze the complex matrix of interests behind existing policies, including the positions and attitudes of national bureaucracies, industries and regions. What is needed is to examine China's governance of its electric power industry, since currently coal is used to generate electric power. Replacing coal with gas for household use is certainly desirable. On the other hand, how the electric power industry is managed has a direct impact on cross-border projects that provide additional and/or competing energy sources for consumption in the provinces of Northeastern China.

The message is that the dynamics in China's domestic political economy are likely to affect the prospect of energy cooperation in Northeast Asia just as much as the larger issues of international politics and economics, including a demand-supply equilibrium in natural gas trade in the area. Considerations of developing cross-border energy cooperation in Northeast Asia can benefit from working with the local bodies of China's electricity governance apparatus in the northeastern provinces, building a web of stakeholders in cooperative project designs.

China's northeastern provinces, in contrast with

western provinces, are not enjoying the same kind of injection of energy investment by the central government. In addition, the northeastern provinces have in recent years lagged far behind the coastal provinces in developing their own industrial bases. This in turn limits their capacities to raise funds to either develop the energy resources in areas under their administrative jurisdiction for commercial purposes or to meet their own consumption needs. For the northeastern provinces, though, the future is not totally bleak. Once a national electric power grid is in place, the province's power suppliers will have an opportunity to benefit through selling their electricity to the national network.

The second paper prepared for this session addressed the issues of oil imports and energy security in the Asia-Pacific region, with a special emphasis on the role of the four largest oil importers - Japan, South Korea, China and India. The author also provided an overview of the structure of energy use in the Asia-Pacific region as a whole, examining the issue of energy dependence with respect to coal, oil, and natural gas. His outlook for oil demand and supply in the region reveals rising oil import dependence and also examined the policy issues and prospects for regional energy cooperation. In the author's opinion, the most important lesson is that energy security can be achieved through the efficient operation of market forces, both at home and abroad. In other words, energy markets can work towards improving energy security.

During this session, Susumu Yoshida, ERINA's Director-General also offered his views on the subject in the context of the latest Japan-Russia conferences, public-private sector meetings and his most recent participation in the Imai Mission of the Keidanren to Russia on June 2-8, 2001. The speaker emphasized that Russia should become the energy supply center for Asia to help to maintain the energy balance.

It is necessary to implement the Sakhalin projects, which are likely to initiate full-scale production of oil and natural gas by 2010. In parallel, progress should be made on exploratory drilling and preparatory development for the Sakhalin 3, 4 and 5 projects, as well as on surveys of the mouth of the Amur River, Magadanskaya Oblast and the Kamchatka peninsula continental shelf. Also, the Kovykta natural gas project and a pipeline to China and the Republic of Korea should be implemented urgently. In the future, the production of natural gas in Yakutia should be expanded, and a pipeline from Yakutia to Kovykta should be built and connected to the Kovykta cross-border pipeline. According to RUSIA Petroleum, the feasibility study on Kovykta will soon be completed. There are 1.59 trillion cubic meters of reserves, 1.1 trillion cubic meters of which has been confirmed, and it is expected that 2003 will see the confirmation of 2 trillion cubic meters of reserves. Discussions in the Duma about the production sharing agreement are also

⁴ Similarly, although China possesses large resources of natural gas, proven reserves are low and gas reserves that are recoverable under current conditions lower still. For example, recoverable resources in the Tarim Basin are estimated at 3 trillion cubic meters, accounting for 32% of the national total.

progressing.

Japan's participation in this project will be the focus of attention and a clear policy is needed, including an assessment of the possible effects of demand-supply misalignments in Asia on Japan, the scale of the financial requirements and the shares of the participating countries in the project, estimated needs in materials and equipment for constructing a pipeline, as well as an evaluation of the Kovykta project in terms of economic security and environmental conservation.

During the fourth session on *Sustainable Development and Northeast Asia*, Yonghun Jung of the Asia Pacific Energy Research Center (APERC) and Alexander Sheingauz of the Khabarovsk Economic Research Institute of the Russian Academy of Sciences discussed respectively on sustainable energy development for the Northeast Asian countries and the Kyoto process in the context of Far Eastern Russia.

The first speaker emphasized that the rational use of conventional energy should be based on full-cost pricing, cost-effective resource development, and the expansion of energy infrastructure to ensure economies of scale in the energy sector. Cleaner energy options include the expansion of natural gas and renewable energy. In this context technology development and diffusion is important, including combine-cycle gas turbines, fuel cells, micro-turbine and clean coal technology. Depending on technological advancements, the potential of renewable sources of energy, including photovoltaics, wind and fuel cells can be realized on a greater scale. In addition, economic mechanisms for managing energy use by increasing the user cost of depletable resources should be considered. Technological innovation holds the key to the future of energy, while consumer acceptance and cost reduction are surfacing as major issues. In this regard, although nuclear power generation may not be seen by many as a desirable option, it is necessary for the time being at least.

One of the government's missions in enhancing energy security and reducing the environmental costs of energy use is to create efficient markets to reflect the "full cost" in prices by internalizing the externalities to the greatest possible extent. Reduced energy consumption and improved energy efficiency make energy demand more elastic, lowering the user cost of depletable energy resources. The introduction of competition tailored to meet individual needs helps, but there is no one-size-fits-all deregulation formula.

It is important that governments facilitate infrastructure development and help renewable technology penetrate the market. Timely infrastructure development offers an opportunity to capture most of the economies of scale and promote energy resource diversification. Regional cooperation aimed at more energy trade will lower the supply cost, making infrastructure, particularly natural gas pipelines, less costly, more efficient and easier to build. Also, a vision for power interconnection is needed. Interdependent relationships based on a combination of market, technology and capital embodied in cross-border infrastructure projects, and coordinated efforts in the

development of renewable energy sources will contribute to both local and global environmental protection. Coordination of environmental policies - based perhaps on "common but differentiated" responsibilities - is needed, as well as research focused on the comprehensive integration of energy and environment policies.

The second speaker (Alexander Sheingauz's paper was on "The Kyoto Process and the Russian Far East: Possibilities of Cooperative Policies for Sustainable Development") addressed the problem of differences among various regions in terms of their carbon emissions and carbon storage capacity, and therefore different roles in the Kyoto process. In this respect, Far Eastern Russia, with its vast unpopulated areas and very large forests serving as a carbon sink, should be considered as a net storage region. It is located close to net emitters such as China, Japan and South Korea and its capacity to absorb carbon by 2010 is estimated at 359 million tons a year. For example, young forests' vegetation rate can reach 14-20 cubic meters per hectare a year, creating a significant addition to the forests' carbon sink capacity. The Kyoto Protocol, however, failed to take into account the factor of the forests' rejuvenation, which in the case of Khabarovskiy Krai is estimated at 1.9% a year.

On the other hand, the Kyoto mechanism of emissions quota trading does not distinguish between the states and the regions. In reality, all four international cooperation schemes proposed under the Kyoto Protocol are applicable to Far Eastern Russia. Moreover, inclusion of this area in the Kyoto process could represent an attractive economic option, promoting reforestation and enhancing forest fire control. In addition, as a major importer of timber from the Far Eastern region and Khabarovskiy Krai in particular, Japan could play a special role in forest management programs and efforts aimed at enhancing fire control capacity in Far Eastern Russia.

During the fifth session on *National, Bilateral and Multilateral Frameworks*, Susumu Abe of Toshiba Corporation and Xiaojie Xu of the Petroleum Economics and Information Center discussed the role of natural gas from both the national and regional perspectives.

The first paper presented at this session provided an outline of the activities of the Northeast Asian Natural Gas & Pipeline Forum (NAGPF), established to promote the construction of the international pipeline network as infrastructure essential for both enhanced energy security and sustainable development in the area. The NAGPF organizes an annual international conference and provides leadership in cooperative activities with member organizations. During the past year, the NAGPF has worked on its first joint international research project and presented a report on "A Long-term Vision for a Natural Gas Trunk Line in Northeast Asia." The objectives of the research were to (1) provide a comprehensive compilation of existing materials, such as papers presented at the previous conferences; (2) review trends in natural gas supply and demand by examining the natural gas policy of each

country and area; and (3) envision a natural gas trunk line with the approval of the member organizations.

The NAGPF will engage in further international research activities, making policy recommendations to international organizations and governments, and emphasizing that cross-border natural gas supply via a pipeline network will contribute to energy cost reductions, the diversification of energy sources and the introduction of competition in the energy sector of the economies involved in such projects. The promotion of natural gas utilization will contribute to mutual reliance among countries and areas, through the export and import of natural gas. It is necessary to coordinate rules, codes of conduct and common domestic practices related to the promotion of natural gas business through the international pipeline. It is also important to establish an international cooperative framework aiming, in the longer-term, at a "Northeast Asian Energy Community" formation and the adoption of a Northeast Asian Energy Charter.

The second speaker ("China's Energy Cooperation with Japan and the Koreas: Prospects and Opportunities") offered an overview of growing imbalances between energy demand and supply in the economies of the subregion and elaborated on prospects for cooperative approaches in developing new energy sources by all energy-importing economies of the region, as well as their rationales for considering such approaches. China-Russia natural gas and oil connections were given special attention, considering their key role in balancing Northeast Asian energy markets. The paper also briefly touched upon prospects for regional cooperation in natural gas and oil exploration and production, cross-border transportation infrastructure, and government level coordination in project financing and risk management. Japanese, Korean and Chinese energy companies are searching for major energy opportunities in Eastern Siberia and the Far Eastern region of Russia. Joint exploration and production (E&P) ventures are one of the essentials for future importers to exercise some degree of control over supplies and secure transportation of the resources.

Central governments could help the companies to develop bilateral and multilateral linkages with their counterparts in the neighboring countries. Intergovernmental coordination is indispensable to support industry-to-industry and private-sector cooperation and promote cross-border mega-projects. For example, in February 2001, when Vladimir Putin visited Seoul to meet with South Korean President Kim Dae-jung, Russia and South Korea expressed their common interest in jointly developing natural gas reserves in the Irkutsk area and promoting investment in projects related to Sakhalin.

On the other hand, legislation and governmental

regulations are needed to oversee and facilitate pipeline construction and operation. Russia is already working on production sharing schemes and allows deregulation in some gas sectors, including E&P and transmission infrastructure. China is currently working on a new gas pricing policy, while Japan and South Korea are in the middle of deregulating their power sectors. In addition to gas and oil cooperation, electric power development and transmission projects are also of interest to all parties.

At the last session devoted to individual papers, on *Interests, Policies and Perspectives: Private Sector, Countries, Regions and Localities*, presentations were made by Tsuneo Akaha of the Monterey Institute of International Studies and Vladimir Ivanov⁵ of ERINA.

Tsuneo Akaha spoke about the likely challenges that will face efforts to establish an institutional framework for regional cooperation in energy security, including perspectives that the nations of the region have regarding multilateral cooperation in the economic sector. The problem is that there is neither a consensus nor a sense of urgency among Japan, Russia and China about multilateral cooperation in the region. South Korea is eager to play an active role in regional affairs but its resource base and international influence are substantially smaller than those of the major powers.

The speaker also addressed the issue of norms, rules, and principles that should guide the operation of a multilateral framework. In this context he mentioned the Tumen River Area Development Program, the non-governmental Northeast Asia Economic Forum and the Niigata Economic Conference. Other multilateral cooperation schemes are dealing with traditional security issues, including the Northeast Asia Cooperation Dialogue (NEACD) and the Council for Security Cooperation in Asia Pacific (CSCAP). However, all these schemes offer lessons that could be taken into consideration in developing institutionalized cooperation in the energy sector.

On the other hand, as mentioned in the second paper presented at this session, lessons from other regions could be learned and applied. The direct adoption of European models and methods, for example, may not be easy. However, the "Euro-Mediterranean Partnership in the Field of Energy" launched in 1995 could be thoroughly studied. This approach emphasizes the central role of the energy sector in achieving the objectives of Euro-Mediterranean cooperation. The framework focuses on a regional approach to security of supply, convergence of energy policy priorities between EU and Mediterranean countries, industry-level cooperation, and electricity and gas infrastructure interconnection. It also deals with legal instruments for encouraging the development of decentralized and liberalized gas and electricity markets, sustainable energy use and joint environmental projects in urban

⁵ The paper on "Northeast Asia and Russian Natural Gas" presented at the workshop appeared in the Japan Review of International Affairs, vol. 15, no. 2, Summer 2001, pp. 147-164.

⁶ Council - Energy Press Release 2267, May 30, 2000, Brussels at <http://ue.eu.int/Newsroom/> Negotiations on the Energy Charter Treaty (ECT) and on the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects were completed in 1994.

regions.⁶

In addition to the developing bilateral dialogue, initiatives undertaken by APEC and other international organizations such as the IEA, the World Bank and the Asian Development Bank should be considered. The Natural Gas Initiative adopted by APEC seems to be suited to the subregion. On the other hand, the economies of Northeast Asia represent a convincing case study exhibiting the difficulties in implementing this initiative.

The highlight of the workshop was the special address presented on the morning of June 27 by Dr. Taro Nakayama, Member of the House of Representatives, Chairman, LDP Research Commission on Foreign Affairs, President of the Committee for the Promotion of the Asian Energy Community, and former Minister for Foreign Affairs. The speaker provided an extensive set of arguments and the rationale for an Energy Community for Asia that could be seen as a comprehensive energy-environment regime, one that, at the very least, increases national and regional awareness of the need to work multilaterally to enhance energy security and reconcile energy use with environmental protection goals. The ongoing changes in Russia and the actions of individual countries in the region indicate that the creation of an 'energy community' is possible and that some initial steps in the right direction have been taken. Progress on the Sakhalin projects exemplifies cooperation between Russia, Japan and the United States. Agreements between Russia and China on the development of gas fields in East Siberia and connecting pipelines also testify as to the future possibilities.

Practical Goals and a Research Agenda

In the morning of June 28, a general discussion and a concluding session were held, where participants made supplementary remarks and offered recommendations. The bottom line of these concluding sessions is that potential investors, policy-makers and energy experts should be educated about the long-term significance of the Northeast Asian subregion. It was agreed that energy is the key to sustainable development, as environmental issues have come to be a central part of energy security. In this context, a comprehensive approach to sustainable development is needed. Natural gas utilization will help to reduce dependence on nuclear power and limit associated environmental risks in the region. It was proposed that ERINA should synthesize the ideas and data included in the project papers to create a more comprehensive, concrete and objective analysis to see whether the gas pipelines make economic sense, considering and comparing them with other options.

The following is a list of proposed topics aimed at identifying a common ground for enhancing energy security and supporting sustainable development:

The first group of recommendations encompasses methodological approaches to the problems of energy security and sustainable development in view of

Northeast Asia. Energy security can be seen as one of the non-traditional security issues and a conceptual framework for energy cooperation could be the focus of the project. In this context, addressing the question of how to work together to improve the energy mix of the subregion, the sources of energy supply and energy-related pollution issues is essential.

Cooperative policies require adjustments in national energy plans. International commitments must be domesticated, and sound national policies such as Japan's 3E-energy principles⁷ should be regionally adopted. This group of issues also involves multilateral agencies' agendas and concrete activities.

The second group of issues encompasses the examination of previous and current energy policies adopted by the economies, defining choices in favor of certain fuels, and sources of existing and possible imports and transportation technologies. This is a vital component in the goal of constructing a conceptual framework that integrates energy security needs and the limitations of sustainable development.

The pace of increase in energy production is unlikely to keep up with demand, and imported energy, especially from the Middle East, will increasingly be needed. In addition, the security environment in Asia is critically important for the stability of supplies. Prospects for new sources of oil supply and oil stockpiles should be examined.

The environment - energy production and usage dilemma constitutes the third group of issues, including acid rain and its cross-border aspects, carbon dioxide emissions and alternative scenarios for dealing with this type of pollution. Emissions trading and power plant modernization, the transfer of technologies and the mobilization of funding, ODA and the environment, and the side effects of energy projects also should be evaluated.

Moreover, the approaches adopted by multilateral organizations, including the OECD, ADB and the World Bank, and regional organizations and forums such as the EU, APEC, and PECC should be analyzed with regard to specific energy and environmental issues relevant or related to the subregion. In this context, KEDO also requires an assessment.

The fourth group of issues concerns development financing needed to realize the potential for cleaner energy, including natural gas, hydro power, clean coal technologies and renewable energy. It deals with the investment environment in countries and regions, involving the activities of trans-national corporations, their ongoing and planned projects, production sharing and other risk-reduction arrangements.

Prospects for cooperation in view of domestic priorities, including the pricing of energy, regional and local interests, and long-term strategies interconnected with energy sector development (and environmental protection) constitute the fifth group of issues to consider. Greater coordination is required between different organizations, including the exchange of the

⁷ 3E stands for Economic development, Energy security, and Environmental protection.

latest information.

Issues that transcend national borders often cannot be dealt with unilaterally. Trans-border environmental problems require that any project with a significant environmental component must be discussed jointly.

It was mentioned that the project would benefit if there were more inputs from stakeholders in the discussion, including those from industry, unofficial government representatives, and environmental organizations.

For example, it was noted that China holds the key to increases in energy consumption and the emitted volumes of CO₂. Russia, on the other hand, aims to use natural gas exports for the economic reconstruction of its eastern territories. Northeast Asian energy security should be a major interest for the United States because world energy markets are highly integrated-what happens in Asia will affect the rest of the world-and because Americans are involved in many existing projects in the region. Also, U.S.-Japan cooperation is an important part of the bigger picture, involving the subregion. This factor could contribute towards subregional cooperation in terms of helping to formulate the "rules of the road" in the environment, investment and other fields.

It was emphasized that the issue of outreach to practitioners and business interests is very important. The project will benefit from a closer look at the views from governments, business community and industry. In this regard, it could be helpful to look at the APEC energy regulators' forum (trans-border pipeline issues) and the energy business network (high-ranking personnel from the leading companies). Also, collaboration with IEA could provide this project with access to member governments.

In any event, experience in working with governments should be shared and analyzed by the participants, using the increasing transparency of governments and their agencies through websites and other sources of information, including international conferences such as a cross-border gas workshop to be held in Paris in March 2002 and a China gas workshop to be held in Beijing in May 2002. This constitutes the sixth group of recommendations pertinent to the project goals.

In conclusion, a proposal was advanced with regard to promoting the establishment of a subregional cooperative framework, which would increase energy security stability for all countries, enhancing at the same time the potential for sustainable development and creating a win-win situation. Energy cooperation should be a model for multilateralism and a source of positive experiences. What is needed is transparency in order to keep third parties informed of the intentions of any bilateral agreements or projects.

On the other hand, an opinion was expressed that the main focus should be on bilateral schemes, as the participation of a 'third party' complicates matters, as illustrated by the case of natural gas transportation from

Russia to Europe via Ukraine.

Moreover, energy issues are closely related to military problems, therefore military considerations are very important for the success of cross-border projects. It is expected that a subregional gas pipeline network would relieve military tension in the region, reducing the need for the United States to provide a security umbrella. In this context the project should address existing energy cooperation frameworks, including those formed between Russia and European countries in the fields of pipeline gas and power grids.

It was also agreed that participants should evaluate the social benefits and potential for social advancement linked to cross-border projects. However, potential negative impacts of large-scale cross-border projects, including political and technical risks, must be also assessed.

It should be noted in conclusion that the governments of the Northeast Asian countries have demonstrated willingness but not yet a strong commitment to cooperating on energy issues. In this respect, efforts undertaken by prominent politicians such as Dr. Taro Nakayama could have an enormous influence.

Technical and research cooperation are also serving as tools in implementing governmental policies through exchanging ideas and discussing differences on longer-term strategic issues. A "second track" dialogue on energy and environmental issues and the value of these exchanges for energy-development-environment cooperation has yet to be emphasized and promoted.

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