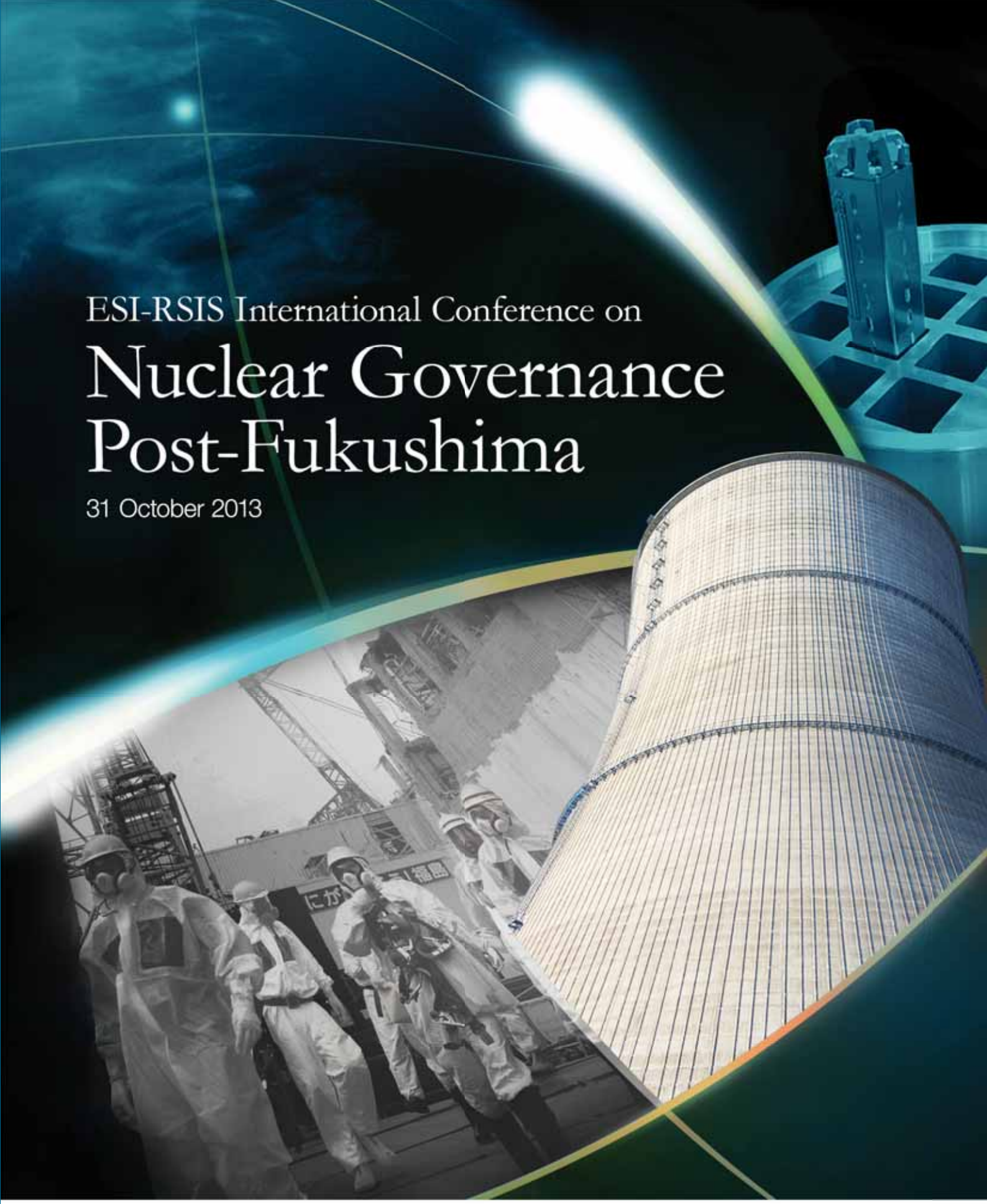
ESI-RSIS International Conference on

Nuclear Governance Post-Fukushima

31 October 2013



S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES

A Graduate School of Nanyang Technological University

ENERGY STUDIES INSTITUTE

ESI-RSIS INTERNATIONAL CONFERENCE ON NUCLEAR GOVERNANCE POST-FUKUSHIMA

REPORT

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NANYANG TECHNOLOGICAL UNIVERSITY

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This report summarises the proceedings of the Conference as interpreted by the rapporteurs and editors of the RSIS Centre for NTS Studies. This report adheres to a variation of the Chatham House Rule.

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Executive Summary

Two years after the accident at the Fukushima Daiichi nuclear power plant in Japan, there is still uncertainty about Japan's future energy policies. Elsewhere, Japan's tragic experience has meant serious re-evaluation of the potential risks and benefits of nuclear power. Also, for many countries, including several ASEAN member states that had been actively pursuing plans to launch or expand their civil nuclear energy capabilities prior to Fukushima, questions on energy strategy remain.

Given such a backdrop, the Energy Studies Institute (ESI) at the National University of Singapore (NUS) and the Centre for Non-Traditional Security (NTS) Studies at the S. Rajaratnam School of International Studies (RSIS) co-hosted the International Conference on Nuclear Governance Post-Fukushima on 31 October 2013. It was convened as part of the annual Singapore International Energy Week (SIEW) held at the Sands Expo and Convention Centre.

The Conference set out to analyse the impact of Fukushima on nuclear energy governance, with specific focus on: (1) identifying and articulating critical emerging international and regional trends in energy security policies post-Fukushima; (2) assessing the impact of global nuclear energy developments on the security landscape in Asia; and (3) recommending critical areas for future policy research.

It brought together experts, policymakers and stakeholders from within the region and beyond to share their insights and experiences. Issues pertaining to trends in nuclear energy policy, socioeconomic and environmental impacts, and public opinion were addressed. Summarised below are some of the key points that were highlighted over the course of the Conference.

- **Governments continue to explore or expand civil nuclear capabilities as part of their energy security strategies, albeit with greater attention to safety.**

All things considered, nuclear energy is still a competitive energy source, especially for countries with extremely high energy needs. This is why most nuclear power plants (NPPs) continue to be in operation (435 worldwide). Around 70 new ones are under construction, primarily in China (29), Russia (10), India (6), South Korea (5) and the US (3). In the context of ASEAN, Vietnam is set to become the first member state to have a civil nuclear programme. Indonesia, Malaysia and Thailand, which had been exploring the nuclear option prior to Fukushima, are also likely to follow through on their plans. After Fukushima, however, there is now greater attention given to safety and a more comprehensive mechanism to factor in potential externalities.

The appeal of nuclear energy comes from three distinct but related areas. First is cost. Though initial set-up costs can be relatively high, the long-run per unit cost of nuclear energy works out to be almost on par with fossil fuels at present-day prices. With fossil fuel prices projected to increase in the future, nuclear could even become the cheaper option. Second, nuclear energy capacity can help break the dependence on the external environment for energy. This is especially true for countries that depend on fossil fuel imports to meet the bulk of their energy demand. Lastly, nuclear energy is environmentally friendly in terms of emissions, which makes it attractive in the face of growing concern over greenhouse gases and a possible global carbon tax in the near future.

Fukushima reminded everyone of some of the hazards intrinsic to a nuclear programme. Many countries have started adopting and implementing better safety features and mechanisms in their existing and upcoming NPPs based on what has been learnt from Japan's experience. This increases the cost of NPPs, but not to the extent where operating a nuclear programme is deemed to be economically unfeasible.

- **Given the broad-ranging issues raised by nuclear technology adoption, a regional approach to nuclear governance would be highly desirable to foster mutual trust and negate potential cross-border apprehensions.**

While the adoption of civil nuclear technology to ensure greater energy security remains largely in the domain of national strategy and policy, the impacts of such a decision go beyond national borders. In the case of Southeast Asia, where countries are relatively close to one another, a disaster on the scale of Fukushima would have severe, direct consequences for all ASEAN member states. It is therefore extremely important to take cross-border ramifications into consideration before following through on nuclear technology plans.

ASEAN's non-interference policy could potentially be an obstacle to regional monitoring and supervision. However, most countries do understand the transboundary risks that accompany nuclear technology and therefore the value of a regional approach to nuclear governance. Sharing of information, knowledge, expertise and services can help enhance nuclear governance at the national and regional levels. There are suggestions that a regional framework in the mould of the Southeast Asia Nuclear Weapon Free Zone (SEANWFZ) would be desirable and effective.

Nuclear capabilities also engender a certain level of apprehension among neighbouring countries, oftentimes even when they are developed strictly for civil purposes; and this could create tensions that could escalate over time. Strict adherence to International Atomic Energy Agency (IAEA) guidelines supported by a regional framework could help foster greater trust and cooperation between countries. Since the risks go well beyond national borders, it is imperative for neighbouring states to work together, both to ensure effective governance and management of nuclear facilities and in terms of disaster preparedness mechanisms.

- **Greater transparency along with engagement with civil society organisations (CSOs) and the public are key to the success of nuclear energy policies.**

The strong backlash against nuclear energy following Fukushima has come from the public and CSOs rather than governments. Concerns over safety and health have been the key drivers, along with issues of internal politics, corruption and lack of trust in the ability of national agencies to safely run and manage the NPPs. Gaining the trust of the public and CSOs will be vital in ensuring the success of national nuclear energy policies.

Much of the distrust and negative sentiment towards nuclear energy programmes emerge from what are perceived to be opaque dealings, negotiations and decision-making with regard to nuclear energy programmes. Most CSOs and communities want a greater voice in NPP-related decisions that affect them directly. The public needs to be informed of all the potential costs and benefits and has to be made part of the decision-making process from the early stages, and not be brought in only when the plans have been finalised.

Greater transparency, whether it is in terms of impact assessments, design and technical considerations, or disaster preparedness plans, would be a positive first step towards building trust. There also needs to be a bigger role for the media, both to disseminate correct information to the people and create proper channels for open discussion with the public to address their concerns. Bringing the public and CSOs into the fold is absolutely necessary in ensuring the success of nuclear energy policies in the future.

Conclusion

Despite the wake-up call given by Fukushima, the potential economic and environmental benefits of nuclear energy have meant that the option is certainly not off the table for many governments. With fossil fuel costs likely to continue on an upward trend into the foreseeable future, and the slow pace of development of renewable sources, nuclear energy is still highly attractive to populous industrialising economies. The Fukushima crisis has highlighted the need to take extraordinary precautions in terms of design safety. Beyond that, however, there must be greater transparency in decision-making and more engagement with the public in building resilient mechanisms (operational, legal, and disaster management) that can not only safeguard communities, but also be in the economic interest of the areas served by a plant.

Welcome Remarks

Professor Chou Siaw Kiang
Executive Director
Energy Studies Institute (ESI)
National University of Singapore (NUS)
Singapore

Prof. Chou emphasised that the importance of good governance in nuclear power development cannot be overstated, particularly after the Fukushima incident. There is a global trend towards civil nuclear power and there is a clear interest in Southeast Asia to develop capacity in this sector. Despite the Fukushima crisis, Vietnam has not changed its plans to build a nuclear power plant (NPP) and has signed agreements with Russian and Japanese companies to help build its nuclear reactors. Indonesia is proceeding with its plans to build NPPs, while Malaysia, Thailand and the Philippines continue to explore the option. Singapore has decided that the current nuclear technologies available are not suitable for deployment in the country.

He also noted the ample opportunities to assist countries in Southeast Asia in the provision and use of nuclear energy. The region has the advantage of being able to leapfrog to the newest technologies, avoiding the inefficient and environmentally damaging technologies of the past. However, in light of the Fukushima crisis, governments contemplating nuclear energy programmes must be mindful of nuclear safety issues and have the best possible safety mechanisms in place before putting their NPPs into operation.

Opening Remarks

Ambassador Barry Desker
Dean
S. Rajaratnam School of International Studies (RSIS)
Nanyang Technological University (NTU)
Singapore

Amb. Desker highlighted the importance of addressing nuclear energy through an interdisciplinary approach. The crisis in Fukushima took place during a period of growth (both physical and in terms of interest) in the sector, and two years after the incident, global plans to develop nuclear energy facilities remain largely intact. This trend is palpable in the Southeast Asian context. Indonesia, Malaysia, Vietnam and Thailand are at various stages of exploring the nuclear option, while the Philippines has expressed an interest in possibly following in its neighbours' footsteps.

Economic and strategic imperatives serve as key drivers in plans by governments to harness nuclear energy. From the start, nuclear energy has been perceived as a potential response to the growing energy insecurity felt in Southeast Asia as a result of rapid economic, population and urbanisation growth. ASEAN countries are heavily dependent on fossil fuels; and higher fuel prices, coupled with the environmental impact of fossil fuels, underlie the recent interest in nuclear energy in the region.

In light of Fukushima, Southeast Asia would do well to glean lessons from other regions, so as to adequately address the issue of nuclear energy governance and better understand the role of cooperation among states in enhancing governance. Amb. Desker noted that the aim of the Conference was to discuss nuclear governance and its impact on the Asian security landscape, and to address some of the new challenges in the post-Fukushima setting. He hoped that the Conference would be useful for future research and discussions.

Roundtable on Nuclear Energy Policies and Their Impact on Asia's Security Landscape

Chair

Ambassador Barry Desker
Dean
S. Rajaratnam School of International Studies (RSIS)
Nanyang Technological University (NTU)
Singapore

Panellists

Dr Andrii Gritsevskyi
Energy Systems Analyst
Energy Planning and Economic Studies Section
International Atomic Energy Agency (IAEA)
Austria

Mr Nicholas Fang
Executive Director
Singapore Institute of International Affairs (SIIA)
Singapore

Professor Dato' Dr Aishah Bidin
Professor, Corporate and Insolvency Law; and
Dean
Law Faculty
National University of Malaysia (UKM)
Malaysia

Mr Kumiaki Moriya
Corporate Chief Engineer
Hitachi-GE Nuclear Energy, Ltd
Japan

Dr Zhou Zhanggui
Assistant Director
Sunshine Law Firm; and
R&D Director
Sunshine Energy, Resources and Environment Center
China

For many Asian countries, nuclear energy remains a viable option for ensuring energy security even after Fukushima, particularly in the face of the economic uncertainties engendered by the ongoing global economic crisis, and the need to ensure access to sufficient energy to sustain economic growth. What has changed since Fukushima, however, is the higher priority accorded to public safety and health.

In the face of these trends, the discussion at the Roundtable revolved around four issues: (1) nuclear policies and energy security as a transboundary concern requiring regional cooperation; (2) the need to generate public trust for a nuclear energy programme; (3) the need for governments to improve governance and capacity; and (4) the need for preparedness planning.

Nuclear Policy as a Regional Concern

Regional cooperation on nuclear energy policies or even a common regional nuclear energy policy in the mould of the Southeast Asia Nuclear Weapon Free Zone (SEANWFZ) may be possible. There is also potential for regional monitoring and surveillance of national nuclear energy programmes. Given that ASEAN is working towards the goal of an ASEAN Community by 2015, it is not impossible for ASEAN to reach some kind of consensus on these and other nuclear energy-related concerns.

Despite criticisms of ASEAN – that it is slow and less than effective – it is still among the best arrangements available for developing policies and frameworks at the regional level. In particular, ASEAN could serve as a platform for regional cooperation on capacity building, information dissemination, and emergency preparedness and response frameworks.

A key concern is that ASEAN's principles of sovereignty and non-intervention in internal affairs, which are enshrined in the ASEAN Charter, could be a hindrance to any kind of a regional mechanism. Indeed, there is general resistance towards discussing national energy programmes at the regional level, with many states still seeing energy security as a national security issue. However, it is imperative to accept that a nuclear energy programme or policy is a transboundary concern.

As there is a risk of contamination spreading across borders, issues such as radioactive waste disposal and radiation must be clearly and transparently addressed by governments; and governments must develop channels for dialogue and communication with neighbours to address possible cross-border impacts. ASEAN could leverage on its strength as a platform for regional cooperation to first deal with non-traditional security concerns such as humanitarian assistance, and from there advance to discussing nuclear energy policies.

Public Trust

Following the Fukushima disaster, public sentiment on nuclear issues has become less positive. Civil society has also increased their criticisms of nuclear energy. It has therefore become a more difficult environment for governments who are keen to develop nuclear energy and for proponents of nuclear energy, particularly operators and manufacturers, to make the case for nuclear power. Thus, governments considering a nuclear energy programme would have to work on gaining public trust.

To secure buy-in from the people, governments and industry need to engage in consultation and dialogue, and they have to take into account the opinions of affected constituencies and stakeholders and make real efforts to address their concerns. Trust could also be developed through providing the public with full information about the advantages and costs of nuclear power. One way to do this may be through a partnership with the media to disseminate appropriate information at the right time.

Governance and Capacity

Today, every country understands that there is a need to find alternatives to fossil fuels. This has led more governments to examine whether it is feasible for them to adopt nuclear technology given their size, economy, geography and vulnerabilities. Beyond such factors, governments considering a nuclear energy programme must first fully understand the gamut of issues involved and be prepared to address them.

There are two broad areas of concern: (1) governance of nuclear energy, including legal obligations, and monitoring and compensation mechanisms; and (2) capacity requirements for nuclear technology operation and management, including engineers, appropriate technology, international and local policies, and safety and regulatory mechanisms.

The legal and regulatory framework for energy infrastructure developed by the International Atomic Energy Agency (IAEA) could serve as a useful model for governments. Private stakeholders, such as legal firms specialising in legal issues related to nuclear infrastructure, should be brought in to help craft the nuclear governance framework. Governments must also ensure that there is adequate funding for the management and maintenance of a nuclear energy programme.

Technology-wise, countries could assess the feasibility of smaller, modular nuclear reactors and underground or underwater reactor sites. It should be emphasised, however, that small reactors are not game changers, no matter how manageable they may be compared to large reactors. As with large reactors, the risks of natural hazards and human error must be taken into account. Also, the duties and liabilities with regard to the management and safety standards that are imposed on nuclear reactor operators under international regulations remain the same.

Preparedness Planning

Fukushima's emergency plans were based on scenarios that were nowhere close to the scale of what actually occurred. This suggests that greater attention needs to be paid to potential risks. There is also a need to develop approaches and countermeasures that address more than just worst-case scenarios, which means not only a plan B, but also plans C to Z, if possible.

Such plans need to emphasise public preparedness, which is crucial in reducing human losses in the event of an accident, especially when incorporated into strategies for evacuation. To increase public preparedness, cooperation between government and industry, and collaboration with civil society organisations, must be further strengthened. Such concerted efforts are critical, particularly in tackling emergencies of the magnitude and scale of Fukushima.

Trends in Nuclear Energy Policies and Technology Post-Fukushima

The Fukushima accident is an important marker in the evolution and story of nuclear technology. This session provided a general overview of developments in the nuclear energy field after this event, as well as a broad look at emerging global trends and the safety considerations that now need to be taken into account.

Trends in Nuclear Energy Post-Fukushima

Dr Andrii Gritsevskyi
Energy Systems Analyst
Energy Planning and Economic Studies Section
International Atomic Energy Agency (IAEA)
Austria

There are currently 435 nuclear power plants (NPPs) in operation in 30 countries worldwide with a total installed capacity of 371.3 gigawatts (GW(e)). The majority of these are located in Organisation for Economic Co-operation and Development (OECD) countries. There are 100 active nuclear power reactors in the US, 58 in France, 50 in Japan, 33 in Russia, and 23 in South Korea. China currently operates 17, with 29 reactors on the way. Other countries that have reactors in the pipeline include Russia (10), India (6), South Korea (5) and the US (3).

When the Fukushima Daiichi nuclear accident occurred in 2011, the future of nuclear energy was called into question. Yet, today, despite the accident, there continues to be a significant number of reactors under construction, a total of 69. Also, two reactors, shut down in 2012 in the wake of Fukushima, have been restarted. The continued reliance on nuclear energy can be attributed to several factors, including rising energy demand, the environmental impact of fossil fuels and the need for affordable energy.

According to projections by the International Atomic Energy Agency (IAEA), nuclear energy capacity will continue to increase going forward, both regionally and globally, albeit at a lower rate than had been anticipated prior to the accident. Under the 'low estimate' scenario, global nuclear electrical generating capacity would increase to 407 GW(e) by 2020, 435 GW(e) by 2030, and 440 GW(e) by 2050. The low-estimate scenario assumes the continuation of current market, technology and resource trends and only marginal changes to laws, policies and regulations affecting nuclear power. If countries were to implement policies aimed at advancing climate change mitigation, as suggested under the 'high estimate' scenario, nuclear electrical generating capacity could increase sharply, to 503 GW(e) by 2020, 722 GW(e) by 2030, and 1,113 GW(e) by 2050. Region-wise, the Middle East, South Asia and the Far East are expected to experience the fastest increases.

Safety in Nuclear Power Plants Post-Fukushima

Mr Kumiaki Moriya
Corporate Chief Engineer
Hitachi-GE Nuclear Energy, Ltd
Japan

Japan had 54 operational nuclear power stations providing up to 30 per cent of the country's electricity prior to Fukushima. Of these, 14 were located in the tsunami-affected eastern coast. The Fukushima Daiichi site, which housed six reactors, was entirely inundated by sea water, causing the power supply to be disrupted and affecting the cooling of the reactors. As a result, three reactors suffered core meltdowns, and another was extensively damaged.

The sweeping damage wrought by the earthquake and the tsunami not only affected the power supply network within the plants but also off-site power lines, emergency diesel generators, water injection systems and electric panels. The total loss of power and the severe destruction around the area (which obstructed physical access to the site) crippled efforts to restart the electrical equipment necessary for emergency action.

The Fukushima accident marked a milestone in NPP fail-safe design and a turning point in how nuclear safety is evaluated and ensured. The accident provided valuable technical lessons for the development of future NPPs, particularly in terms of the role of extreme external events. An NPP's design conditions should factor in internal events, which are dominated by random failures of systems and equipment, as well as external events such as tsunamis and earthquakes. Prior to Fukushima, however, external events of an extreme nature were not anticipated in an NPP's design conditions. (Not only was Fukushima extreme in nature, it could also not be predicted by historical seismic and tsunami data.)

Fukushima offers several insights into safety measures against extreme external events. Backup facilities with the necessary equipment for recovery of safety functions in the plant will need to be located away from an NPP site. Such buildings should be equipped with alternate AC power supply and mobile DC batteries, alternate water injection and cooling systems, spare parts for pumps, valves and electric panels, etc. The building should also be able to operate as an advance base if the main control room loses its functions. Emergency procedures should be prepared for proposed countermeasures and appropriate changeover of management base and responsibility should be executed according to accident stage.

As it is not possible to predict when an extreme external event may occur, lessons learned from Fukushima will have to be applied to all types of new and existing nuclear reactors. There are already efforts to incorporate some of these safety enhancements in new NPPs in the UK and Lithuania.

Discussion

Fukushima has had several significant impacts, some of which may hinder the further development of nuclear energy. Perhaps most significant of these is the erosion of public trust. Although new safety features and extra measures have been introduced, restoring public confidence remains a challenge. Open dialogue between the government and the public, during which the public is able to develop a sound understanding of the risks involved, is key. The IAEA could also assist in this process through the sharing of experiences. Transparency and open channels of communication are particularly vital during disasters, as the Chernobyl nuclear accident in 1986 demonstrated. In the immediate aftermath, there was little communication on the scale of the problem, both to nearby residents and neighbouring countries, which caused more to be exposed to the impacts of radiation contamination.

Fukushima has also meant higher financial costs. The outlays required to institute safety measures and damage control mechanisms and for liability compensation could affect the economic viability of nuclear power. Estimating the extra cost is also difficult, which renders nuclear energy's competitive advantage even more unpredictable.

Related to this is the need to factor in low-probability external scenarios in the design conditions of NPPs. This would not be easy. Nuclear sites would have to commit to proactive continuous improvements to reduce the possibility of failures arising from extreme external events. Lessons could be taken from similar events elsewhere. As an example, the 2005 Aceh tsunami would have served as a relevant case for reviewing and evaluating the design conditions of Fukushima and other nuclear sites.

What was clear, then, from the discussion was that countries developing or exploring nuclear energy as a solution would have to simultaneously deal with a range of thorny social, economic and technical issues, some of which have no clear solutions. Developing the governance and technological capacity to effectively resolve these would be a key challenge going forward.

Nuclear Governance and Non-Traditional Security Issues

In opting for nuclear energy, numerous considerations and issues need to be taken into account. The legal and administrative frameworks and the potential socioeconomic and environmental impacts that accompany nuclear technology will have to be addressed. This session sheds light on some of these areas.

Nuclear Law and the Malaysian Legal Framework on Nuclear Security

Professor Dato' Dr Aishah Bidin
Professor, Corporate and Insolvency Law; and
Dean
Law Faculty
National University of Malaysia (UKM)
Malaysia

Nuclear law is concerned with the peaceful uses of nuclear science and technology. It covers a range of areas, including: licensing, inspection and enforcement; radiation protection and safety; emergency response and management; transport of radioactive material; management of radioactive waste; decommissioning; nuclear liability in cases of nuclear accidents; and international trade of nuclear materials. Each of these must be addressed in order to develop a comprehensive national law to govern nuclear energy.

When crafting domestic nuclear laws, it is important to comply with the guidelines, standards and codes set by institutions and international conventions. Perhaps most important of these are the IAEA guidelines, which cover 19 key areas including those mentioned above, and serve as a useful checklist for countries. The degree to which a country complies with international nuclear governance standards is particularly tested over the course of the development of nuclear infrastructure. Malaysia's experience serves as a good example.

Malaysia's legal framework on nuclear energy has its origins in the Atomic Energy Licensing Act (Act 304) passed on 1 April 1984. This law led to the establishment of an enforcement body, the Atomic Energy Licensing Board (AELB), under the Prime Minister's Department on 1 February 1985. The AELB was subsequently placed under the Ministry of Science, Technology and Innovation on 27 October 1990.

The AELB was established with the aim of ensuring that radiation and nuclear technology do not negatively affect national and societal well-being. It was also tasked with acquiring, disseminating and generating knowledge in order to enhance radiation and nuclear safety. Another of its functions was to facilitate the introduction of modern industries and the acquisition of sensitive state-of-the-art technologies. Malaysia subsequently established the Malaysia Nuclear Power Corporation (MNPC) on 11 January 2011 to spearhead the planning and eventual deployment of nuclear power plants (NPPs) in Malaysia.

Consultation with relevant stakeholders was an important part of the process of developing nuclear legislation in Malaysia. Legal experts conducted extensive consultations with different stakeholders, such as the Ministry of Health, the Ministry of Science, Technology and Innovation, and the customs department. Emergency response and planning mechanisms were also recognised as key components of nuclear security and safety. As such, relevant government agencies, such as the Ministry of Internal Affairs, the National Disaster Centre, the National Security Council and the police force, were also made part of the process.

When it comes to drafting the legislative framework, it is important to ensure consistency among the various domestic laws related to different aspects of nuclear security. International conventions and treaties should also be integrated into the domestic legal framework so as to ensure that domestic laws are in line with international benchmarks. Criminalisation of nuclear-related offenses is also a critical aspect of nuclear legislation given the significant consequences of nuclear terrorism and other illegal activities.

A major challenge in formulating a legal framework is the need to reconcile the interests of various parties. Different interest groups come to the table with divergent views, and it is often difficult to reach a consensus. Public opinion is another factor that has to be dealt with. Thus, consultation and engagement are an important part of the process of developing an effective legal framework.

In summary, a legal framework that encompasses implementation of safety and security measures, capacity building and transparency in management, regional collaboration, and human capital development is an essential element of the development of nuclear energy both nationally and in the region.

The Socioeconomic Impact of Nuclear Energy

Professor Dr Hans-Holger Rogner
Affiliate Professor
Royal Institute of Technology (KTH)
Sweden; and
Guest Scholar
International Institute for Applied Systems Analysis (IIASA)
Austria

The deployment of NPPs consists of several stages, from planning and licensing to decommissioning. Each stage can take from several years to decades, and the span of time from building a plant to safely decommissioning it can be more than a century. Each stage also has important socioeconomic impacts on society as well as local communities, whether natural, physical, social, financial or human.

One of the earliest stages is site selection and preparation. The outcomes of seismological tests, environmental impact assessments and stakeholder involvement should be factored into the choice of an NPP site. Public acceptance is the main impact associated with this stage. At the construction stage, the local economy receives a boost in the form of job creation, an increase in tax revenues and improvements in local infrastructure. At the same time, however, there are negative impacts such as inflation and over-expansion of infrastructure and, when construction ends, local governments may face an economic backlash.

In the next stage, the operation of an NPP, positive impacts include employment and tax revenues. However, issues such as migration and bias against products from the area due to fears of contamination will arise. In the post-operation stage, the local community faces challenges such as decline in employment opportunities, withdrawal of investment in public services and economic contraction.

From a national perspective, nuclear energy is a source of affordable electricity. The cost of generating electricity from nuclear energy is very competitive compared to other fuels. Also, with uranium accounting for only 5 per cent of the generation cost, the cost is much more predictable compared to a fuel such as gas, which has experienced big price fluctuations in the past.

At the global level, nuclear energy may contribute to diversification of energy resources. With growth in global production of oil and gas slowing down, the use of unconventional energy is becoming necessary. Nuclear energy is also one of the cleanest sources for electricity generation in terms of greenhouse gas emissions and air pollution.

Nuclear energy is projected to be introduced into Southeast Asia's energy mix in the 2020s. It is thus important for countries in the region to develop nuclear literacy. This involves capacity building, educating the public about nuclear infrastructure construction and disseminating information to the public. To ensure nuclear security and safety in the region, cooperation at the regional level is vital. Countries can cooperate on various fronts: confidence building, research and education, safety and security issues, information exchange and early notification, emergency preparedness and response, and waste management.

Nuclear Energy and the Policy Environment

Dr Alistair D.B. Cook
Research Fellow; and

Ms Sofiah Jamil
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Energy demand in Southeast Asia is rising in tandem with economic development, posing a challenge to the energy security of states in the region. Indonesia, Malaysia, Singapore, the Philippines, Thailand and Vietnam account for 95 per cent of the region's energy consumption. However, available national supply in these countries is not sufficient to meet demand. Although Indonesia is a major exporter of coal and liquefied natural gas (LNG), it is a net importer of oil. Malaysia exports natural gas but imports coal. Singapore is dependent on imports.

A source of energy insecurity in the region is the high dependence on fossil fuels, which make up 73 per cent of the region's energy consumption. A high proportion of these fuels have to be imported from outside of Southeast Asia, which makes the region susceptible to risks from geopolitical and domestic shocks in oil-exporting countries and regions.

Nuclear technology is thus seen as an attractive proposition and interest in nuclear energy has been on the rise. Vietnam plans to build 10 NPPs by 2030; Indonesia has plans to build 4 by 2024; and Thailand intends to build 5 by 2030. Malaysia and the Philippines are studying the option and Singapore commissioned a pre-feasibility study.

While the Fukushima crisis generated serious safety concerns and strong opposition to NPPs, it did not halt the NPP programmes, only slowed them down, with countries now making extra effort to address safety issues. Given public concern over safety, engagement with communities has increased in importance. Within this context, the pre-Fukushima experiences of Vietnam and Indonesia in using socialisation initiatives to promote public acceptance of nuclear energy are relevant.

Vietnam arranged for heads of villages located close to potential NPP sites to visit plants in Japan, including Fukushima, in 2010. These initiatives appear to have paid off and there is substantial support for nuclear energy projects in Vietnam. However, similar success has not been seen in Indonesia and concern over safety remains high. Nevertheless, the Indonesian government continues to make efforts to assure the public of Indonesia's nuclear safety preparedness.

With Southeast Asia prone to natural disasters, the development of NPPs must be cause for concern. The absence of a nuclear safety protocol in ASEAN makes the problem even greater. The only agreement on nuclear safety among ASEAN member countries is a 1995 treaty to keep the regional bloc a zone free of nuclear weapons.

Discussion

The Fukushima crisis has certainly not brought a halt to the development of nuclear energy in Southeast Asia. While Indonesia has scaled down its NPP plans – from 4,000 megawatts (MW) to 1,600 MW – this is the result of domestic factors rather than the Fukushima incident. Indeed, the lack of casualties from the Fukushima nuclear crisis has been cited as evidence for the safety and reliability of nuclear energy. An observation was made that Japan's experience offers valuable lessons for a seismically active country like Indonesia and that Indonesia should strive to improve nuclear safety.

With some countries in the region planning to deploy nuclear energy in the near future, cooperation and coordination are seen as indispensable to nuclear safety. However, given the diversity of legal systems, establishing a common framework is no easy task. In this regard, governments could reference standards set by organisations such as the IAEA when formulating nuclear legislation.

Liability is a key component of nuclear governance as it defines issues such as compensation in case of nuclear accidents. The Vienna Convention on Civil Liability for Nuclear Damage provides a legal basis for countries to address liability issues. However, many countries with nuclear reactors are still not signatories to the Convention. This is a large loophole and creates further uncertainties as populations may then have little to no legal recourse when liability issues arise.

In striving for common standards and legislation, it should be remembered that countries will vary in their perception of what constitutes risk or damage from a nuclear accident. The reaction of populations may also differ from that of the authorities. This makes it difficult to define worst-case scenarios, which in turn complicates efforts to strive for regional standards and legislation on issues such as safety and liability. Nevertheless, it is important that efforts are made, as the impacts of a nuclear accident could easily extend beyond a country's border.





SIEW 2013
NEW HORIZONS IN ENERGY

Aishah Bidin



ESI-RSIS International Conference on Nuclear Governance Post-Fukushima

31 October 2013

Front row (L to R):
Assoc. Prof. Mely Caballero-Anthony, Prof. Chou Siaw Kiang, Amb. Barry Desker, Dr Philip Andrews-Speed, Prof. Dato' Dr Aishah Bidin, Mdm Ton Nu Thi Ninh

Second row (L to R):
Ms Sofiah Jamil, Mr Kumiaki Moriya, Dr Andrii Gritsevskyi, Prof. Hans-Holger Rogner, Dr Alistair D.B. Cook, Mr Fabby Tumiwa, Mr Nur Azha Putra, Dr Eulalia Han, Ms Sahara Piang Brahim

Selected Case Studies on Nuclear Governance

This session focused on the governance frameworks and the on-the-ground issues experienced by countries in Asia with regard to their nuclear programmes. The case studies also highlighted developments and considerations that have emerged in the aftermath of Fukushima.

China's Nuclear Power Safety Regulations Outlook

Dr Zhou Zhanggui
Assistant Director
Sunshine Law Firm; and
R&D Director
Sunshine Energy, Resources and Environment Center
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China has had a good record in operating and maintaining nuclear power plants (NPPs) and the 2011 Fukushima crisis further strengthened the country's resolve to improve its nuclear safety. China has instituted a number of laws on nuclear and radiation safety in line with International Atomic Energy Agency (IAEA) standards since the 1980s. These cover, among others, the siting, design, manufacture, construction, operation and decommissioning of NPPs.

There are three main governmental departments involved in nuclear energy development and regulation, namely, the National Energy Administration, the China Atomic Energy Authority (also known as the China Nuclear Energy Authority) and the National Nuclear Safety Administration.

The National Energy Administration is affiliated with the National Development and Reform Commission and is in charge of nuclear power development planning and nuclear power industry management. The China Atomic Energy Authority is affiliated with the Ministry of Industry and Information Technology and is in charge of the management of the nuclear fuel cycle industry and emergency preparedness and response. The National Nuclear Safety Administration is affiliated with the Ministry of Environmental Protection and is in charge of safety regulations and the licensing and regulation of nuclear installations, components and materials. The above departments are subordinate to the State Council which is China's chief administrative authority.

Following the Fukushima crisis, China's leaders reiterated the need for more stringent action to ensure nuclear safety. Towards this end, the State Council issued four decisions on 16 March 2011: (1) thorough checks on and evaluation of all nuclear facilities; (2) review of safety standards in the operation of NPPs; (3) review of NPPs under construction, and how they measure up against the most advanced standards; and (4) suspension of approvals for new NPP projects until the completion of a national nuclear safety plan.

Concerns however remain. China faces a serious shortage of qualified personnel and funding. The average number of staff per nuclear reactor is only 8.3 and the average budget per reactor is only RMB2,650,000 (USD434,976). In contrast, the average number of staff per reactor in the US, France and Japan is 33.5, and the average budget per reactor is USD8,260,000.

In light of such issues, serious thought should be given to addressing safety-related issues before developing more NPPs. First, appropriate regulations must be rigorously implemented and the pace of NPP expansion restrained. Second, detailed and timely information pertaining to NPPs must be disseminated and the public's right of information, oversight and participation protected. This would help cultivate a positive image for nuclear power and increase public acceptance. Third, the development of legislation on nuclear safety must be accelerated. In particular, an Atomic Energy Act should be introduced. Fourth, the independence and authority of nuclear safety regulatory agencies should be strengthened and the number of technical support personnel increased. Finally, sufficient funding and personnel should be made available to support efforts to ensure the quality and effectiveness of China's nuclear safety regulations.

Human Resources and Capacity Building: Issues and Challenges for Vietnam

Mdm Ton Nu Thi Ninh
Former Ambassador of Vietnam to the European Union;
Former Vice Chair
Foreign Affairs Committee
National Assembly of Vietnam; and
Director
Tri Viet Center for Social and Educational Research
Vietnam

Vietnam's nuclear energy plans date back to the 1980s, when plans were drawn up for the development of a 440 megawatt (MW) NPP with Soviet assistance. However, the project was shelved, primarily due to economic reasons and also because of safety concerns following the Chernobyl nuclear disaster in 1986. Interest in NPPs has increased again in recent years, and the country's National Assembly adopted the Atomic Energy Law in June 2008.

The construction of two NPPs in Ninh Thuan Province in south central Vietnam was subsequently approved in November 2009, and a master plan for the Peaceful Development and Use of Atomic Energy up to 2020 was approved in 2010. The master plan envisaged the operationalisation of Ninh Thuan NPP 1 and 2 by 2020, and an increase in the share of nuclear energy in the country's energy mix to 2.1 per cent by 2020 and 10.1 per cent by 2030.

The Fukushima crisis has not disrupted the country's plans. However, lessons from the crisis have been taken into account. Post-Fukushima, the country has modified the location of Ninh Thuan NPP 1. It has also emphasised up-to-date technology incorporating safety features, revisited human resource (HR) training plans, reviewed the 2008 Atomic Energy Law for possible amendments, and enhanced the institutional capacity of state agencies and other actors. A full governmental management system has been put in place, with stress given to safety and security, HR and public communication.

A key mechanism is the National Preparedness and Response Plan that encompasses national and local (Ninh Thuan Province) levels and the NPPs. The Prime Minister also approved an HR master plan for nuclear energy in August 2010. The aim of the master plan, for which roughly USD150 million has been mobilised, is to ensure the safety and security of the NPPs through capacity building in the areas of policy planning and legal training as well as through attracting overseas expertise and engaging proactively in international cooperation. Five universities and one training centre have been selected to train professionals to operate and maintain NPPs. In addition, memoranda of understanding have been signed with various countries (Russia, Hungary and Japan), institutions and the IAEA for the training of students and staff and to help local institutes with curriculum development.

However, even as the country moves ahead with its nuclear plans, there is lingering scepticism over the wisdom and feasibility of pursuing nuclear energy. The cost of building and maintaining NPPs could be prohibitive, particularly for a developing country like Vietnam. A more immediate option for the country could be to focus on reduction of wastage in its current energy consumption. Also, while the country has instituted several mechanisms and legal frameworks, its ability to coordinate the various national and local agencies in the event of a crisis remains in question. The country does have proven experience in disaster preparedness and response when it comes to typhoons and floods, but no experience with nuclear-related incidents – and it still has a long way to go to fully prepare for disasters involving NPPs.

Another challenge, one which could potentially derail the realisation of the country's nuclear energy plans, is the shortage of trained professionals for the operation and maintenance of NPPs. As of 2012, the country had 568 trained staff working in the nuclear field, but few were involved in NPP-related areas.

Also, although the country is now focusing on HR training and capacity building, there have been criticisms that the emphasis has been on theory rather than application. A suggestion is that efforts could be made to bring in and train engineers with prior experience in operating and maintaining thermal or hydropower plants.

The general lack of a 'safety culture' in Vietnam is another hurdle. Vietnamese society is perceived to be the antithesis of Japanese society, which is known for its safety mindset and culture. This raises the issue of whether personnel manning NPPs in Vietnam would strictly abide by safety rules and procedures. Independent expert supervision and oversight is thus critical.

Managing Civil Society and Public Response and Expectations: The Case of Indonesia

Mr Fabby Tumiwa
Executive Director
Institute for Essential Services Reform (IESR)
Indonesia

Indonesia's nuclear energy plan dates back to the 1970s. The first NPP study conducted in 1975 proposed fourteen sites, of which five were selected. This was further narrowed down to one, Ujung Lemah Abang on the north coast of Central Java in the Muria Peninsula. A full feasibility study followed in the 1990s and a 1,000MW NPP was proposed for the site. This was further raised to 4,000MW. However, negative public sentiment has since led the government to slow down and scale back its development plans.

Opposition towards NPPs arises from a number of factors, the most significant of which are worries over safety and a general lack of trust in the government and its allied institutions. Although NPPs have been touted by successive governments as clean and safe, the public believes such claims to be nothing more than propaganda. There is a perception that the government and its allied institutions are pro-nuclear and are serving the interests of investors and technology vendors, not those of the public.

Such beliefs are reinforced by the paucity of critical data and information open to public scrutiny. For instance, the government has been accused of not being transparent in its assessment of the Muria Peninsula NPP site, given the seismic and volcanic risks in the area. Also lacking are mechanisms for informed public policy debates and public involvement in all levels of decision-making processes.

To improve public sentiment on nuclear energy, effective governance and democratisation of decision-making would be needed. A first step could be to increase access to information and data on NPPs. Such information could then be debated through public forums such as a Citizen Jury or Citizen Panel. Such forums have been used extensively in the US and Germany (where they are called planning cells) to deliberate on a range of policy and planning issues, including health, environmental and social justice issues. This method allows for the inclusion of expanded levels of expertise, knowledge and skills. It gives participants opportunities to question the experts, and facilitates face-to-face exchange, experiential learning and social interaction. It is imperative that such consultation be done in an open and transparent manner. Finally, strong, independent and credible regulatory bodies that can command public trust must be established, particularly given the perception that existing regulatory bodies have a pro-nuclear, pro-investor bias.

Discussion

An observation was made that Southeast Asia is on the cusp of a nuclear energy race not only because of the need to diversify energy sources but also for politically symbolic reasons of being the first country in the region to have nuclear capabilities. However, the Fukushima accident has highlighted the need for stronger international governance and closer international cooperation on nuclear safety and security.

One suggestion put forward was for an intergovernmental Asia-Pacific nuclear energy community. Such a mechanism could serve to facilitate high-level consultation on nuclear plans and programmes; regional cooperation and promotion of best practices 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.

The potential role of Singapore in future regional nuclear energy cooperation elicited much interest. The country was seen as an ideal candidate to play the role of broker in regional agreements on nuclear energy. Its position as a leading clean energy hub for Southeast Asia, its considerable technical expertise in areas such as electronics, precision engineering and chemicals, and its safety culture also makes it a suitable location for hosting nuclear safety institutes to train personnel from neighbouring countries. This, if translated into reality, could considerably enhance nuclear safety in Southeast Asia.

Programme

31 October (Thursday)
Sands Expo and Convention Centre
Marina Bay Sands
Singapore

09:00 **Welcome Remarks**

Professor Chou Siaw Kiang
Executive Director
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National University of Singapore (NUS)
Singapore

09:10 **Opening Remarks**

Ambassador Barry Desker
Dean
S. Rajaratnam School of International Studies (RSIS)
Nanyang Technological University (NTU)
Singapore

09:20 **Theme 1 (Part 1): Global Trends in Nuclear Energy Policies and Technology Post-Fukushima**

Chair

Professor Chou Siaw Kiang
Executive Director
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Global Trends in Nuclear Energy Policies and Technology Post-Fukushima

Dr Andrii Gritsevskyi
Energy Systems Analyst
Energy Planning and
Economic Studies Section
International Atomic Energy Agency (IAEA)
Austria

Global Development in Nuclear Technology – Safety Enhancements to Nuclear Power Plants Post-Fukushima

Mr Kumiaki Moriya
Corporate Chief Engineer
Hitachi-GE Nuclear Energy, Ltd
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10:00 **Q and A**

10:50 **Theme 1 (Part 2): Roundtable Discussion on Global Trends in Nuclear Energy Policies and Their Impact on the Security Landscape in Asia**

Chair

Ambassador Barry Desker
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Dr Zhou Zhanggui
Assistant Director
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13:00 **Theme 2: Nuclear Governance and Non-Traditional Security Issues**

Chair

Dr Philip Andrews-Speed
Principal Fellow
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Nuclear Law and the Malaysian Legal Framework on Nuclear Security

Professor Dato' Dr Aishah Bidin
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The Socioeconomic Impact of Nuclear Energy

Professor Dr Hans-Holger Rogner
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Nuclear Energy and the Policy Environment

Dr Alistair D.B. Cook
Research Fellow; and
Ms Sofiah Jamil
Adjunct Research Associate
Centre for Non-Traditional Security (NTS) Studies
S. Rajaratnam School of International Studies (RSIS)
Singapore

14:00 **Q and A**

15:15 **Theme 3: Selected Case Studies on Nuclear Governance**

Chair

Associate Professor Mely Caballero-Anthony
Head
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China's Nuclear Power Safety Regulations Outlook

Dr Zhou Zhanggui
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Human Resources and Capacity Building: Issues and Challenges for Vietnam

Mdm Ton Nu Thi Ninh
Former Ambassador of Vietnam to the European Union;
Former Vice Chair, Foreign Affairs Committee National Assembly of Vietnam; and
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Managing Civil Society and Public Response and Expectation: Case of Indonesia

Mr Fabby Tumiwa
Executive Director
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16:15 **Q and A**

17:00 **Closing Remarks**

Associate Professor Mely Caballero-Anthony
Head
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End of Conference

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About the Energy Studies Institute (ESI)

Since its establishment in November 2007, the **Energy Studies Institute (ESI)** has continued to strengthen its presence in the international energy policy research arena.

ESI provides timely and quality analyses in an evolving energy research landscape influenced by regional and global events. As a leading energy and resource policy think tank, ESI is committed to leveraging the best resources, methods and tools to carry out policy-related energy research and to raise public awareness. ESI's research has been published in key internationally refereed journals and publications. In addition, our staff often write newspaper commentaries and appear on television interviews.

As of 2013, ESI has five Research Tracks: Climate Change, Energy Efficiency, Natural Gas, Nuclear Energy, and Power Generation. It also has one Programme: the Asia-Europe Energy Policy Research Network.

Since the 1970s, many economy-energy-environment (E3) models using the integrated assessment modelling approach have been developed to support energy and climate policymaking at the national, regional and global levels. Among other things, E3 system modelling and analysis can provide insights into the interrelationships among economic development, energy consumption and the resulting environmental pollution. The staff at ESI are using many of the various E3 models in their research projects and are working with scholars from around the world to continuously develop and improve their application.

ESI Activities

As a thought leader, ESI frequently organises international conferences and seminars in the areas of energy economics, energy and the environment, and energy security. Its events are organised jointly with other think tanks, government agencies and industries. ESI's activities include the following:

- Perform academic research and undertake energy studies commissioned by public and private agencies and industry.
- Conduct public outreach programmes.
- Participate in the Singapore International Energy Week and local and overseas energy-related events.
- Conduct research seminars and organise international conferences, workshops and capacity-building programmes.

Through these activities, we bring together international networks of academics, policymakers and industry leaders to promote discussion and advance our collective understanding of how local and global energy systems are evolving.

Collaborators and Research Sponsors

Building and Construction Authority, Energy Market Authority, Land Transport Authority, Ministry of the Environment and Water Resources, Ministry of Foreign Affairs, Ministry of Trade and Industry, National Climate Change Secretariat and National Environment Agency.

About the S. Rajaratnam School of International Studies (RSIS)

The **S. Rajaratnam School of International Studies (RSIS)** was established in January 2007 as an autonomous School within Nanyang Technological University. Known earlier as the Institute of Defence and Strategic Studies when it was established in July 1996, RSIS' mission is to be a leading research and graduate teaching institution in strategic and international affairs in the Asia-Pacific. To accomplish this mission, it will:

- Provide a rigorous professional graduate education with a strong practical emphasis.
- Conduct policy-relevant research in defence, national security, international relations, strategic studies and diplomacy.
- Foster a global network of like-minded professional schools.

Graduate Education in International Affairs

RSIS offers a challenging graduate education in international affairs, taught by an international faculty of leading thinkers and practitioners. The Master of Science (MSc) degree programmes in Strategic Studies, International Relations, Asian Studies, and International Political Economy are distinguished by their focus on the Asia-Pacific, the professional practice of international affairs, and the cultivation of academic depth. Thus far, students from more than 50 countries have successfully completed one of these programmes. In 2010, a Double Masters Programme with Warwick University was also launched, with students required to spend the first year at Warwick and the second year at RSIS.

A small but select PhD programme caters to advanced students who are supervised by faculty members with matching interests.

Research

Research takes place within RSIS' six components: the Institute of Defence and Strategic Studies (IDSS, 1996), the International Centre for Political Violence and Terrorism Research (ICPVTR, 2004), the Centre of Excellence for National Security (CENS, 2006), the Centre for Non-Traditional Security Studies (Centre for NTS Studies, 2008); the Temasek Foundation Centre for Trade & Negotiations (TFCTN, 2008); and the Centre for Multilateralism Studies (CMS, 2011). The focus of research is on issues relating to the security and stability of the Asia-Pacific region and their implications for Singapore and other countries in the region.

The school has four professorships that bring distinguished scholars and practitioners to teach and to conduct research at the school. They are the S. Rajaratnam Professorship in Strategic Studies, the Ngee Ann Kongsi Professorship in International Relations, the NTUC Professorship in International Economic Relations, and the Bakrie Professorship in Southeast Asia Policy.

International Collaboration

Collaboration with other professional schools of international affairs to form a global network of excellence is an RSIS priority. RSIS maintains links with other like-minded schools so as to enrich its research and teaching activities as well as adopt the best practices of successful schools.

About the RSIS Centre for Non-Traditional Security (NTS) Studies

The **RSIS Centre for Non-Traditional Security (NTS) Studies** conducts research and produces policy-relevant analyses aimed at furthering awareness and building capacity to address NTS issues and challenges in the Asia-Pacific region and beyond.

To fulfil this mission, the Centre aims to:

- Advance the understanding of NTS issues and challenges in the Asia-Pacific by highlighting gaps in knowledge and policy, and identifying best practices among state and non-state actors in responding to these challenges.

- Provide a platform for scholars and policymakers within and outside Asia to discuss and analyse NTS issues in the region.

- Network with institutions and organisations worldwide to exchange information, insights and experiences in the area of NTS.

- Engage policymakers on the importance of NTS in guiding political responses to NTS emergencies and develop strategies to mitigate the risks to state and human security.

- Contribute to building the institutional capacity of governments, and regional and international organisations to respond to NTS challenges.

Our Research

The key programmes at the **RSIS Centre for NTS Studies** include:

1) Internal and Cross-Border Conflict Programme
   - Dynamics of Internal Conflicts
   - Multilevel and Multilateral Approaches to Internal Conflict
   - Responsibility to Protect (RtoP) in Asia
   - Peacebuilding

2) Climate Change, Environmental Security and Natural Disasters Programme
   - Mitigation and Adaptation Policy Studies
   - The Politics and Diplomacy of Climate Change

3) Energy and Human Security Programme
   - Security and Safety of Energy Infrastructure
   - Stability of Energy Markets
   - Energy Sustainability
   - Nuclear Energy and Security

4) Food Security Programme
   - Regional Cooperation
   - Food Security Indicators
   - Food Production and Human Security

5) Health and Human Security Programme
   - Health and Human Security
   - Global Health Governance
   - Pandemic Preparedness and Global Response Networks

The first three programmes received a boost from the John D. and Catherine T. MacArthur Foundation when the RSIS Centre for NTS Studies was selected as one of three core institutions to lead the MacArthur Asia Security Initiative in 2009.

Our Output

Policy-relevant Publications

The **RSIS Centre for NTS Studies** produces a range of outputs such as research reports, books, monographs, policy briefs and conference proceedings.

Training

Based in RSIS, which has an excellent record of post-graduate teaching, an international faculty, and an extensive network of policy institutes worldwide, the Centre is well-placed to develop robust research capabilities, conduct training courses and facilitate advanced education on NTS. These are aimed at, but not limited to, academics, analysts, policymakers and non-governmental organisations (NGOs).

Networking and Outreach

The Centre serves as a networking hub for researchers, policy analysts, policymakers, NGOs and media from across Asia and farther afield interested in NTS issues and challenges.

The Centre is the Coordinator of the ASEAN-Canada Research Partnership (2012–2015) supported by the International Development Research Centre (IDRC), Canada. It also serves as the Secretariat of the initiative.

In 2009, the Centre was chosen by the MacArthur Foundation as a lead institution for its three-year Asia Security Initiative (2009–2012), to develop policy research capacity and recommend policies on the critical security challenges facing the Asia-Pacific.

It is also a founding member and the Secretariat of the Consortium of Non-Traditional Security Studies in Asia (NTS-Asia).

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