

6<sup>th</sup>

**APPSNO**

# ASIA-PACIFIC PROGRAMME

FOR SENIOR NATIONAL SECURITY OFFICERS (APPSNO)  
9-13 APRIL 2012, SINGAPORE

**Complexities:**  
Interactions and  
Inter-dependencies  
for National Security



**S. RAJARATNAM SCHOOL  
OF INTERNATIONAL STUDIES**  
A Graduate School of Nanyang Technological University

NATIONAL SECURITY  
COORDINATION SECRETARIAT

# 6<sup>th</sup> Asia-Pacific Programme for Senior National Security Officers (APPSNO)

REPORT ON THE CONFERENCE ORGANISED BY  
THE CENTRE OF EXCELLENCE FOR NATIONAL SECURITY (CENS)  
AT THE S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES (RSIS),  
NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE

WITH THE SUPPORT OF  
THE NATIONAL SECURITY COORDINATION SECRETARIAT (NSCS)  
AT THE PRIME MINISTER'S OFFICE, SINGAPORE

9 – 13 APRIL 2012  
THE SENTOSA RESORT AND SPA, SINGAPORE

## CONTENTS PAGE

<b>1. Background and Aims of the Conference</b>	<b>3</b>
<b>2. Executive Summary</b>	<b>4</b>
<b>3. Opening Remarks</b>	<b>9</b>
<b>4. Opening Address</b>	<b>10</b>
<b>5. Lunch Lecture: Complexity and Policymaking: Challenges and Opportunities</b>	<b>11</b>
<b>6. Session 1: Singapore's Strategic Framework for National Security</b>	<b>12</b>
<b>7. Session 2: Embracing Complexity in National Security</b>	<b>13</b>
<b>8. 2<sup>nd</sup> APPSNO Alumni Dinner Lecture: Harnessing Social Media in a National Security Crisis</b>	<b>15</b>
<b>9. Session 3: Complexity and Terrorism: Understanding Adaptive Adversaries</b>	<b>16</b>
<b>10. Lunch Lecture: Countering Radical Ideology in a Complex National Security Environment: Reflections on the RRG</b>	<b>19</b>
<b>11. Scenario Planning in the Singapore Public Service</b>	<b>20</b>
<b>12. Session 4: Complexity and Cybersecurity: Engineering Resilient Regimes</b>	<b>21</b>
<b>13. Distinguished Dinner Lecture: Why the West Rules – For Now: Security Challenges in the 21<sup>st</sup> Century</b>	<b>23</b>
<b>14. Session 5: Resilient Post-Disaster Social and Economic Recovery Mechanisms</b>	<b>26</b>
<b>15. Programme</b>	<b>29</b>

Rapporteurs: Damien D. Cheong, Sulastri Osman, Jennifer Yang Hui, Yeap Suyin, Senol Yilmaz

Edited by: Damien D. Cheong

*This report summarises the proceedings of the conference as interpreted by the assigned rapporteurs and editor of the S. Rajaratnam School of International Studies. Participants neither reviewed nor approved this report.*

*The conference adheres to a variation of the Chatham House Rule. Accordingly, beyond the points expressed in the prepared papers, no attributions have been included in this conference report.*

## BACKGROUND AND AIMS OF THE CONFERENCE

National security is, today, a complex domain encompassing matters ranging from the challenges of homeland security management, to designing coping strategies for a wide variety of traditional and non-traditional threats. National security, especially in a rapidly changing and complex environment, remains a key concern for countries worldwide.

In line with this, and with the aim of promoting a multi-agency and networked government approach as an important response to today's complex and uncertain security milieu, the Centre of Excellence for National Security (CENS), a research unit of the S. Rajaratnam School of International Studies (RSIS) and the National Security Coordination Secretariat (NSCS), part of Singapore's Prime Minister's Office, jointly organised the 6<sup>th</sup> Asia-Pacific Programme for Senior National Security Officers (APPSNO). APPSNO is targeted at senior government officials from the Asia-Pacific and beyond with responsibilities for national security matters. It is envisaged that APPSNO would become an important tool for promoting the analytical frameworks, mindsets and skills needed for effective national security management.

APPSNO is driven by two primary objectives:

### **1. Enhancing exposure to global best practices in national security**

Participants were given the opportunity to learn about the trends and global best practices in national security issues through lectures and informal discussions. Prominent speakers this year were invited to speak on topics such as *Complexity and Policymaking: Challenges and Opportunities*, *Singapore's Strategic Framework for National Security*, *Embracing Complexity in National Security*, *Harnessing Social Media in a National Security Crisis*, *Complexity and Terrorism: Understanding Adaptive Adversaries*, *Countering Radical Ideology in a Complex National Security Environment: Reflections on the Religious Rehabilitation Group*, *Complexity and Cyber Security: Engineering Resilient Regimes*, *Why the West Rules – For Now: Security Challenges in the 21<sup>st</sup> Century* and *Resilient Post-Disaster Social and Economic Recovery Mechanisms*. The small-group interactive discussion format enabled participants to share ideas and experiences that were of broad professional interest.

### **2. Facilitating an international network of national security experts and practitioners**

APPSNO provided the platform for participants to network with global national security experts as well as develop stronger relationships with their regional counterparts. Interaction was facilitated through field visits, sight-seeing and social activities.

# EXECUTIVE SUMMARY

## OPENING REMARKS

*Ambassador Barry Desker, Dean, S. Rajaratnam School of International Studies, NTU*

In his opening remarks, Ambassador Barry Desker welcomed the participants and introduced them to the aims and objectives of APPSNO. Since its inception in 2007, APPSNO has endeavoured to bridge the gap between theory and practice on matters relating to national security. Senior national security practitioners and academics from various countries were invited to participate in the event, and engage in a rigorous exchange of ideas and views. The theme of the 6<sup>th</sup> APPSNO was “Complexities: Interactions and Inter-dependencies for National Security”. Ambassador Desker observed that contemporary global crises and unrest were caused by complex interactions of social, political and economic factors. Such ‘black swan’ events were likely to occur more frequently in the future, and as such, this APPSNO would focus on how national security practitioners could better understand and operate more effectively in light of such events. Ambassador Desker also said that APPSNO endeavoured to be the platform for national security practitioners and scholars to network, gain knowledge and learn, unlearn and re-learn their tradecraft in today’s challenging security environment.

## OPENING ADDRESS

*Mr. Teo Chee Hean, Deputy Prime Minister, Coordinating Minister for National Security and Minister of Home Affairs*

Deputy Prime Minister Teo Chee Hean argued that the contemporary global risk landscape had become highly complex, and was expected to grow even more complex in the future. Instead of a single dominant risk, DPM Teo warned, the world would be confronted with a series of interconnected risks that would coalesce to become a major security event. Among the important risk multipliers today were: (a) cyberthreats; (b) demographic/population change; and (c) climate change. Such risks made the

achievement of security more challenging, and as such, it was imperative for security practitioners to improve their abilities in identifying potential risks quickly, and respond adaptively in addressing these risks. DPM Teo suggested three ways to meet this challenge: First, a multidisciplinary approach was needed to better understand the causal factors and interconnections of current risks. Second, an adaptive approach, whereby strategies and policies were constantly reviewed and improved, must be employed. Third, effective collaboration between international partners must be developed to enable responses to be more effective.

## LUNCH LECTURE: COMPLEXITY AND POLICYMAKING: CHALLENGES AND OPPORTUNITIES

*Jan Vasbinder, Director, Complexity Programme, NTU*

Jan Vasbinder’s presentation focused on the dynamics, intricacies and challenges that pertained to complexity and policymaking. *Complexity*, according to Vasbinder, relates to systems that have many agents which interact as well as to emerging phenomena (global behaviour) that result from those interactions. Complexity science therefore seeks to find and understand the underlying principles that lead to complexity. As complexity is a key science for the coming century, Vasbinder argued that those who learn to master it will gain a decisive advantage over those who do not. With regards to policymaking, Vasbinder observed that the existing approach often involved defining goals first and then finding ways to achieve those goals. In the contemporary environment, however, the complex challenges confronting policymakers necessitated policymaking tools that could match the complexity of the world. In other words, the complexity of the system developing the policy should match the complexity of the system that would be affected by the policy. In Vasbinder’s view when the complexity and the scale of an organisation do not match the complexity it has to deal with, disaster inevitably strikes.

## **SESSION 1: SINGAPORE'S STRATEGIC FRAMEWORK FOR NATIONAL SECURITY**

### **Singapore's Strategic Framework for National Security**

*Loh Kean Wah, Deputy Director (Policy and International Relations), National Security Coordination Centre (NSCC), Prime Minister's Office, Singapore*

Loh Kean Wah's presentation provided an overview of the Singapore government's strategic framework for national security. Singapore faced a myriad of complex challenges in relation to national security such as transnational terrorism. A review of the National Security Framework identified four major shifts: (a) *Challenges to National Security* – From one to many; (b) *Nature of the Risk* – From distinct to interdependent; (c) *National Security Strategy* – Whole-of-Government (WOG) to Whole-of-Society (WOS); and (d) *National Security Strategy* – From resistance to resilience. In response, Singapore's Strategic Framework for National Security employs a three-pronged approach that involves: (a) *Organisational Frameworks* – Whole-of-Government networks, structures and processes; (b) *Prevent, Protect, Respond* – Preventive and protective measures against potential terrorist threats and robust response in the event of an attack; and (c) *Resilience* – The ability to bounce back quickly in the aftermath of a crisis and ensuring that Singapore's social fabric is not weakened through Engagement, Awareness and Cohesion. WOG capabilities have been enhanced through: (a) resilience research; (b) community engagement; (c) crisis coordination; and (d) resilience policy coordination. Loh concluded that Singapore derives strength from the Whole-of-Government approach as well as international collaboration in countering terrorism.

## **SESSION 2: EMBRACING COMPLEXITY IN NATIONAL SECURITY**

### **STRONG in the 21<sup>st</sup> Century: Strategic Orientation and Navigation Guidance in the Age of Complexity**

*Stephan de Spiegeleire, Senior Defense Scientist, Hague Centre for Security Studies*

Stephan de Spiegeleire presented on the difficulties faced by defence and security organisations in understanding and applying concepts of complexity in an increasingly

uncertain security landscape. Complex systems have many different and constantly interacting components dynamically evolving over time in an unpredictable manner, and which appears different on a number of scales and levels. Governments are not structured to understand complex situations, and hence, they often fall back on linear processes. To manage a complex situation, foresight planning should incorporate elements of being frank, adaptive, responsive, network-centric and to take into account of all forms of knowledge that can be gathered on the matter. In complex situations, the element of uncertainty that arises due to the emergent characteristics of a system must be taken seriously. In conclusion, de Spiegeleire noted that while current problems resulted from emergent factors that are intertwined and interactive, similarly, solutions to such problems would also result from the outcomes of the emergent interactions of different actors.

### **Embracing Complexity in National Security:**

#### **The Role of Resilience**

*Patricia Longstaff, Professor, S.I. Newhouse School of Public Communications, Syracuse University*

Patricia Longstaff presented on the role of resilience in the current uncertain security landscape. This landscape was best understood as the difference between the 'cog world' where interacting components have predictable reactions and the 'bug world' where there are high levels of adaptation and evolution, making predictions difficult. Longstaff reminded the audience of the distinction between developing strategies for 'resistance' and 'enhancing resilience'. The former calls for approaches to keep one's enemies away, while the latter refers to approaches to facilitate recovery. According to Longstaff, the key elements that would enhance resilience include: (a) maintaining diversity; (b) intervening at the right scales; (c) maintaining a loosely coupled system; and (d) having adaptive capabilities. Longstaff also suggested a novel method to counter transnational terrorist groups such as al-Qaeda. She opined that the authorities should look into ways to consistently and constantly 'surprise' such groups. She also suggested the use of strategies to force such adversaries to become tightly coupled, which would then enable the authorities to target one area instead of multiple areas.

## **2<sup>nd</sup> APPSNO ALUMNI DINNER LECTURE: HARNESSING SOCIAL MEDIA IN A NATIONAL SECURITY CRISIS**

*W. Timothy Coombs, Professor, Nicholson School of Communication, University of Central Florida*

Timothy Coombs' presentation discussed how social media could be better-leveraged by governments during national security crises such as disasters. He first outlined how social media was commonly used by citizens in a disaster. Those affected (directly and indirectly) would often use it to: (a) gather instructing information (i.e. information on how to protect/help themselves); (b) assist other individuals by providing important information and volunteering help; and (c) aid in the healing/rebuilding process.

Coombs then identified several ways in which governments could use social media during an emergency. These included: (a) gathering data for decision making (situational awareness); (b) coordinating rescues; (c) deploying aid; (d) disseminating instructing information to citizens, e.g. shelters and evacuation routes; (e) updating conditions; (f) scanning for problems; (g) facilitating recovery; and (h) involving citizens in preparation. Coombs observed that using social media during emergencies was particularly challenging. Some of these challenges were: (a) difficulty in monitoring social media for information consistency and credibility; (b) integrating emergency phone and social media for monitoring purposes; (c) information overload; (d) improper use by citizens; (e) verifiability of information; (f) security of the system; (g) reliability of the system; and (h) coordinating information. Among the solutions proposed by Coombs were: (a) developing more relevant smart phone applications; (b) training citizens; (c) identifying a list of verified channels and sources; and (d) establishing reasonable expectations.

## **SESSION 3: COMPLEXITY AND TERRORISM: UNDERSTANDING ADAPTIVE ADVERSARIES**

### **The Darul Islam Charismatic Group as a Complex Adaptive System**

*Kumar Ramakrishna, Head, Centre of Excellence for National Security (CENS), RSIS, NTU*

By drawing upon the insights of complexity theory, Kumar Ramakrishna's presentation aimed to: (a) analyse

the transnational terrorist threat posed by Indonesian-based militant networks; and (b) provide an alternative, exploratory analysis of the regenerative potential of Jemaah Islamiyah and its associated networks. He termed Jemaah Islamiyah (JI) and its associated networks as the Darul Islam Charismatic Group (DICG), which he conceptualised as a complex system, or a super-organism, which was driven by an internal logic of group survival. This was, in turn, shaped by the evolving ideological frameworks of al-Qaedaism and the more indigenous Darul Islamism. The DICG has since "mutated" in response to environmental stimuli, giving rise to "adaptations" such as: (a) Komando Jihad in the 1970s; (b) Since 1993: Structural JI, Tanzim Qaedatul Jihad, JAT, al-Qaeda in Aceh; and (c) New, ever-evolving splinters and cells with the operational focus suspended between organised and individual jihad. Ramakrishna stressed that the DICG super-organism continues to evolve in response to environmental pressures and influences, and there is no end-point. He suggested demolishing/countering the ideologies of al-Qaedaism and Darul Islamism as an important first step toward destabilising the DICG.

### **Complexity and Terrorism: Understanding Adaptive Adversaries**

*Mia Bloom, Associate Professor, International Centre for the Study of Terrorism, Penn State University*

Mia Bloom's presentation discussed a new computational modelling tool called the Competitive Adaptation in Terrorist Networks, which modelled the social, psychological and cultural properties of adaptive militant networks. This was envisaged to enable analysts to better understand how adaptations and innovations occurred in terrorist and counterterrorist organisational structures, and more significantly, how they reacted to changes that occurred within the other party. Using the case study of the Irish Republican Army (IRA) to show how the model worked, Bloom observed that the provisional IRA had been much quicker than the UK authorities in analysing vulnerabilities and making adaptations to their *modus operandi*. She also identified several tactical adaptations that were becoming increasingly common in other global terrorist organisations. These were: (a) use of checkpoint and proxy bombs; (b) use of women on the front line; (c) developing cultures of martyrdom; and (d) establishment of youth wings.

## **LUNCH LECTURE: COUNTERING RADICAL IDEOLOGY IN A COMPLEX NATIONAL SECURITY ENVIRONMENT: REFLECTIONS ON THE RRG**

*Mohamed Feisal bin Mohamed Hassan, Religious Counsellor and Secretariat Member, Religious Rehabilitation Group (RRG)*

Mohamed Feisal bin Mohamed Hassan spoke about the workings of Singapore's Religious Rehabilitation Group and shared with the audience how the voluntary group of religious clerics and scholars came to being, as well as the role it has been playing in assisting the government in its counterterrorism efforts. He also shed light on the RRG's various religious counselling and rehabilitation programmes as well as the challenges it faces as a voluntary group that seeks to fight misinterpreted religious ideologies of groups like Jemaah Islamiyah. He also reflected on what the group had achieved thus far, and the lessons it had learned since conception, which included: (a) developing closer collaboration between the Government and religious leaders; (b) constantly honing counselling techniques and skills; (c) Re-learning Islamic concepts to develop effective counter arguments; and (d) enhancing existing community engagement programmes.

## **SCENARIO PLANNING IN THE SINGAPORE PUBLIC SERVICE**

*Tan Chee Seng, Assistant Director, Strategic Policy Office, Public Service Division, Prime Minister's Office*

In his presentation, Tan Chee Seng from the Strategic Policy Office (SPO), also known as the Centre for Strategic Futures, talked about the work that was undertaken at his office. He presented the tasks of SPO, namely futures-related work and strategic planning. In terms of futures related work, these included: (a) long term planning/trends; (b) scenario planning exercises; (c) futures-related projects (Wildcards/Black Swans); and (d) futures training and consultancies. With regards to strategic planning, this involved: (a) Whole-of-Government strategic planning; (b) strategic issues of an inter-agency nature; and (c) risk governance. Tracing the development of scenario planning from World War II to the 1970s, Tan pointed out that the most important part in scenario planning was not the scenarios themselves, but the insights gained in the process of developing these scenarios. The advantages were a better understanding of the forces that drive

change. Furthermore, it enabled analysts to challenge long-held assumptions, to test strategies and develop sensitivity, which shortens reaction time to new events and developments.

## **SESSION 4: COMPLEXITY AND CYBERSECURITY: ENGINEERING RESILIENT REGIMES**

### **Complexity and Cyber Security: Engineering Resilient Regimes**

*Nigel Phair, Director, The Centre for Internet Safety, University of Canberra*

Nigel Phair's presentation focused on how cyber security regimes could be made more resilient. He began by discussing the trends and implications of today's cyber security environment. These included: (a) cybersecurity was traditionally focused on critical infrastructure protection; (b) the responsibility to protect assets must be shared between owners and operators of critical infrastructure and government; (c) cybersecurity should focus on resilience rather than protection; and (d) cyber threats are wide ranging. Phair identified the sources of modern cyberthreats: (a) nation states; (b) activists; (c) criminals; and (d) ideologically-motivated hackers. He also drew attention to cloud computing and the potential risks and security implications associated with it. Phair suggested that in order to enhance cyber security, organisations should: (a) increase their detection capabilities paying particular attention to the inflow and outflow of data especially from internal sources; (b) increase diversity by concentrating risk in the hands of more than two IT suppliers; and (c) use deception by being 'tricky' with the organisation's network architecture.

### **Complexity and Cyber Security: Engineering Resilient Regimes**

*Rex Hughes, Co-Convenor, Cyber Defence Project, Wolfson College, University of Cambridge*

Rex Hughes' presentation offered an alternative view of how cyber security regimes could be made more resilient. Giving a brief overview of the cybersecurity landscape he demonstrated the ease with which cybercrime could be committed. The Wikileaks and the Anonymous phenomenon illustrated the nature and characteristics

of contemporary cyberthreats. Hughes then identified several principles that would make cybersecurity regimes more resilient: (a) *Leadership*: CEO-level awareness and leadership of cyber risk management; (b) *Interdependence*: All parties have a role in fostering a resilient shared cyberspace; (c) *Physical and Virtual*: Integrated Risk Management; and (d) *Incentives*: Encourage suppliers and customers to meet common criteria. Hughes also discussed how global hubs could be better insulated against cyber threats. He suggested: (a) increasing situational awareness; (b) increasing diversity of networks; (c) increasing public-private partnerships; (d) reducing risk liability; (e) developing/re-evaluating regulations for the internet, social media and usage of *SMART* applications; and (f) increasing *Cloud* security.

### **DISTINGUISHED DINNER LECTURE: WHY THE WEST RULES – FOR NOW: SECURITY CHALLENGES IN THE 21<sup>st</sup> CENTURY**

*Ian Morris, Professor, Department of Classics, Stanford University*

Ian Morris' presentation was premised on a long-term view of history in tracing macro scale patterns that emerged from micro scale interactions and activities. Through a measurement of social development of civilisations reaching back 15,000 years in time, what appears to have driven such development was the element of geography. This presented a complex picture of historical development; for while geography played a big part in determining the social development of civilisations, social development also had a crucial role in determining and changing the meaning of geography.

Morris admitted that there were limitations in adopting linear ways of interpreting history as the results were likely to exhibit non-linear patterns. This could be seen in technological and biological changes, which were set to revolutionise the way humans perceive the world around time. In the long term, technology-driven transformations look set to change the world in a profound way.

### **SESSION 5: RESILIENT POST-DISASTER SOCIAL AND ECONOMIC RECOVERY MECHANISMS**

#### **An Assessment of the Impact of the Anders Breivik Incident on Multiculturalism in Norway and Europe**

*Magnus Ranstorp, Research Director, Swedish National Defense College*

Magnus Ranstorp's presentation discussed the terror attacks committed by Anders Breivik in Norway and their implications for social resilience, multiculturalism and community-based relations in Europe. Ranstorp began by giving a broad overview of the European Union's counter-terrorism strategy, which contained five elements: (a) Prepare; (b) Protect; (c) Pursuit; and (d) Respond. He then provided details of the Breivik terror attacks as well as details of Breivik's activities before, during and after the attacks. Ranstorp also shed light on the operational errors made by the Norwegian Police, such as the overreliance on Special Weapons and Tactics (SWAT) instead of the Active Shooter Protocol, in their response to the attacks. He also pointed out that despite such mistakes, Norwegian society displayed strong resilience in the face of this national crisis. Ranstorp concluded by identifying several lessons learnt for bolstering national resilience. These included: (a) understanding the intersection between the internet and the dynamics of 'glocal' processes; (b) community buy-in will depend on local communities' recognition that an extremist problem exists; (c) engagement with communities should not only be done through a counterterrorism prism; and (d) community-based approaches are essential to countering violent extremism.

#### **Resilient Post-Disaster Social and Economic Recovery Mechanisms**

*Yoshioka Tatsuya, Co-Founder and Director, Peace Boat, Japan*

Yoshioka Tatsuya's presentation provided an overview of Peace Boat's activities and experiences in disaster relief and management. He discussed Peace Boat's involvement in the relief efforts following the Great East

Japan Earthquake and Tsunami in 2011. Tatsuya explained how Peace Boat volunteers rendered assistance to those affected by the disaster, particularly in terms of removing debris, rebuilding communities and helping individuals cope with the tragedy. He observed that while foreign governments were eager to offer additional assistance, the Japanese government had to decline such help due in part to the lack of administrative structures and linguistic skills. Among the lessons learnt were: (a) collaboration between national government, regional governments,

civil society (NGOs) and corporations was essential; (b) systematisation of training volunteers, volunteer leaders and coordinators was imperative; (c) a comprehensive disaster relief body needed to be established that comprised the Japan Self-Defense Forces (JSDF), Police and Fire Departments; (d) the capacity to receive international volunteers had to be strengthened; and (e) a nuclear power plant accident countermeasure agency had to be established.

## OPENING REMARKS



*Ambassador Barry Desker*

In his opening remarks, Ambassador **Barry Desker** welcomed the participants and introduced them to the aims and objectives of APPSNO. Since its inception in 2007, APPSNO has endeavoured to bridge the gap between theory and practice on matters relating to national security. Senior national security practitioners and academics from various countries are invited to participate in the event so as to facilitate a rigorous exchange of ideas and views.

The theme of the 6<sup>th</sup> APPSNO was “Complexities: Interactions and Inter-dependencies for National Security”. Ambassador Desker noted that complexity had become a relevant conceptual tool in understanding and addressing national security issues in contemporary times. This was because modern day security threats are often caused by unintended consequences that stem from complex interactions between social, political and economic factors.

Ambassador Desker predicted that ‘black swan’ events were likely to occur more frequently in the future, and as a result, this APPSNO would focus on how national security practitioners could better understand such events and operate more effectively in this complex security environment.

Ambassador Desker then provided a summary of the topics that would be discussed throughout the week in APPSNO. The panel on embracing complexity in national security would explore how existing national security infrastructure could be made more adaptive to prevailing uncertainties. The panel on complexity and terrorism would discuss strategies on how to deal with highly adaptive terrorist groups. In light that global cyber-attacks had increased over the years, the panel on cyber-security and resilience would discuss how more resilient cyber-security regimes could be developed. The final panel would examine case studies pertaining to the complexity of post-disaster recovery processes, and discuss how social and economic recovery could be carried out more effectively.

Ambassador Desker concluded his speech with a quote from the American writer and futurist Alvin Toffler, who said: “The illiterate of the 21<sup>st</sup> century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn”. He stressed that APPSNO endeavoured to be *the* platform for national security practitioners and scholars to network, gain knowledge and learn, unlearn and re-learn their tradecraft. He also hoped that the participants would find the conference useful and be able to derive meaningful take-aways to assist them in future.

## OPENING ADDRESS



*Deputy Prime Minister Teo Chee Hean*

Deputy Prime Minister **Teo Chee Hean** observed that the theme for APPSNO 2012, “Complexities: Interactions and Interdependencies for National Security”, was highly relevant and timely. The global risk landscape had grown more complex in the last ten years in light that globalisation and advances in technology had deepened systemic interdependencies, which were not always apparent to observers and analysts. Consequently, this made handling security risk issues more challenging than ever before.

Instead of a single dominant risk, DPM Teo warned, the world would be confronted with a series of interconnected risks that would coalesce to become a major security event. Among the important risk multipliers today were: (a) cyber threats; (b) demographic/population change; and (c) climate change. Such risks made the achievement of security more challenging, and as such, it was imperative for security practitioners to improve their abilities in identifying potential risks quickly, and respond adaptively in addressing these risks.

DPM Teo suggested three ways to meet this challenge: First, a multidisciplinary approach was needed to better

understand the causal factors and interconnections of current risks. He cited the efforts undertaken by the international community to fight piracy in the Gulf of Aden and Somalia as an example of such an approach. A naval task force comprising of international members was established to patrol, escort and disrupt pirate activity in the region. They also work closely with private ship owners as well as attempted to address the root causes of piracy by strengthening governance and promoting economic development.

Second, an adaptive approach must be employed in which strategies and policies were constantly reviewed and improved. DPM Teo cited Singapore’s National Climate Change Strategy as an example of this approach. He revealed that existing measures were often re-evaluated and modified to better enhance the city-state’s resilience against climate change.

Third, effective collaboration between international partners must be developed to enable responses to be more effective. A good example, said DPM Teo, was the establishment of the new INTERPOL Global Complex for Innovation. This facility would not only conduct research and development and develop new capabilities (e.g. digital forensics), but also enable law enforcement officers around the world to share real-time criminal data, analyse cyber threats and trends, and collaborate more effectively.

DPM Teo concluded his address by commending the participants on their participation in APPSNO 2012. He was heartened by the turnout as it signified that the participants “saw the necessity and value of working together across countries and agencies to deal with a more dynamic and complex risk landscape”.

## COMPLEXITY AND POLICYMAKING: CHALLENGES AND OPPORTUNITIES



Jan Vasbinder

**Jan Vasbinder's** presentation discussed the dynamics, intricacies and challenges that pertained to complexity and policymaking. *Complexity*, according to Vasbinder, related to systems that had many interacting agents as well as to emerging phenomena (global behaviour) that resulted from those interactions. Complexity science therefore sought to find and understand the underlying principles that result in complexity. In Vasbinder's view, complexity is a key science for the coming century, and he predicted that those who learn to master it will gain a decisive advantage over those who do not. This was because complexity science was expected to produce important tools to help humanity cope with the grand challenges of the future.

With regards to policymaking, Vasbinder observed that the existing approach was highly influenced by a linear view of processes and history. He argued that the Enlightenment and the great advances in scientific knowledge and technology that it spurred, had led to the mistaken belief that the world could be planned and that its people could be made happy if more effort was dedicated to knowing the smallest details of how the world worked. However, the relationships between the different parts of the system were often ignored. Similarly in policymaking, the current process often fails to take into account the complexity of issues as it is mainly focused on defining goals and then finding ways to achieve those goals.

In the contemporary environment, however, the complex challenges confronting policymakers necessitate policymaking tools that can match the complexity of the world. In other words, the complexity of the system developing the policy should match the complexity of the system that would be affected by the policy. In Vasbinder's view when the complexity and the scale of an organisation do not match the complexity it has to deal with, disaster inevitably results. He cited the example of super-size comprehensive schools in the UK that had 1500 to 2000 students, which when compared to smaller schools, often experienced behavioural problems in the classroom and poor academic achievements. This was because smaller schools provided a student-friendly pedagogical environment, which was a major contributory factor to the good academic results.

Vasbinder maintained that complex situations could be effectively investigated by utilising models only if they were of similar complexity as the situations that were being modelled. Also, if such models were to be used, they must be able to co-evolve with the situations that they model.

### Discussion

The issues that were raised during the question and answer session related to: (a) the originality of complexity as a theory; (b) alternative theoretical approaches for policymaking, such as chaos theory; and (c) the applicability of the complexity model to real-life situations.

In reference to (a) and (b), Vasbinder believed that complexity theory evolved from other theories such as chaos theory, and as such, was able to surpass the linearity of the other theoretical models. As for (c), he reiterated that it was imperative for organisations to adopt a network approach rather than a hierarchical approach to problem-solving, although he admitted that implementation would be challenging. Vasbinder nevertheless stressed that organisations risked being surpassed by the world if they did not change their mind sets and approach.

Vasbinder was also asked if models were a reliable way to simulate real-life problems, as they were, by definition, simplified versions of the real world. He replied that the current models used for problem-solving tended to be

based on linearity. The real world was not as simple in light of its many interconnections, and as such, if models were to be made more relevant, they had to be redesigned to take into account of such dynamics.

## SESSION 1

# SINGAPORE'S STRATEGIC FRAMEWORK FOR NATIONAL SECURITY



Loh Kean Wah

**Loh Kean Wah's** presentation provided an overview of the Singapore government's strategic framework for national security. He began with a brief introduction on Singapore's social, economic and political dynamics. Singapore is a city-state with a population of more than 5 million people of multi-ethnic and multi-religious backgrounds. Singapore is also a major transport hub in the Southeast Asian region. Furthermore, Singapore has a globally-connected economy with diverse industries such as manufacturing, electronics, chemicals, mechanical engineering and biomedical sciences. It also has a thriving tourist industry. In this context, Singapore faces a myriad of complex challenges in relation to national security, since global and regional events have a direct and indirect impact on the city-state. The threat from transnational terrorism, according to Loh, is one such example.

A review of the National Security Framework identified four major shifts: (a) *Challenges to National Security* – From one to many; (b) *Nature of the Risk* – From distinct to interdependent; (c) *National Security Strategy* – Whole-of-Government (WOG) to Whole-of-Society (WOS); and (d) *National Security Strategy* – From resistance to resilience.

In response to these changes, Singapore's Strategic Framework for National Security employs a three-pronged approach that involves: (a) *Organisational Frameworks* – Whole-of-Government networks, structures and processes; (b) *Prevent, Protect, Respond* – Preventive and protective measures against potential terrorist threats and robust response in the event of an attack; and (c) *Resilience* – The ability to bounce back quickly in the aftermath of a crisis and ensuring that Singapore's social fabric is not weakened through Engagement, Awareness and Cohesion.

In relation to (a), Loh briefly discussed the functions and responsibilities of the Security Policy Review Committee, National Security Coordination Secretariat and the National Security Coordination Centre. With regards to (b), he discussed existing 'hardening' measures in aviation, maritime security, public transport and cyber security. In terms of (c), Loh first defined national resilience as the collective ability of institutions, social capital, physical infrastructure, and value systems to recover from a national crisis, adapt to the post-crisis environment, and integrate the lessons learned. He then talked about several initiatives such as enhancing social resilience, countering radical ideology and improving economic resilience. These initiatives were premised on a multi-agency approach that targeted cross segments of the population through a variety of engagement channels and platforms.

Loh also discussed the resilience initiatives across Government and revealed that WOG capabilities had been enhanced through: (a) resilience research; (b) community engagement; (c) crisis coordination; and (d) resilience policy coordination. Loh concluded that Singapore derives strength from the Whole-of-Government approach as well as international collaboration in countering terrorism.

## Discussion

The two salient points that were raised in the question and answer session were: (a) the domain/jurisdiction of the National Security Coordination Centre (NSCC), particularly in relation to national defence; and (b) an appraisal of NSCC's efforts.

Loh responded that NSCC attempted to focus on domains in national defence that had not been previously

examined by existing institutions such as the Ministry of Defence (MINDEF).

With regards to his evaluation of NSCC's efforts, Loh admitted that there were areas such as social resilience where NSCC needed to devote more resources and examine more closely in the future. He revealed that NSCC was also attempting to measure risks within different domain areas, and stressed that evaluating such risks were important.

## SESSION 2

# EMBRACING COMPLEXITY IN NATIONAL SECURITY



(from left) *Stephan de Spiegeleire and Patricia Longstaff*

Prefacing his presentation with Stephen Hawking's statement that the 21<sup>st</sup> century would be the century of complexity, **Stephan de Spiegeleire** noted that while complexity could be found in many aspects of the surrounding environment, it was not an easy concept to understand. Furthermore, it was often confused with problems which were complicated but not necessary complex. While complicated problems and issues do not change much over time, complex systems share the following core characteristics: (a) complex systems have many different components that constantly interact in an interdependent manner; (b) components in complex systems dynamically evolve over time, sometimes in an unpredictable manner; and (c) complex systems look different on a number of levels or scales. As such, analysing complex environments was extremely difficult as it was not easy to get a complete picture of the situation. A way to overcome this difficulty was to attempt to probe and try things on a small scale when confronted with

uncertainty. This would enable a portfolio of experiments and information to be collected, and thereby enable those in charge to augment things that work and abandon the ones that did not work.

Elaborating on how complexity was dealt with in the Dutch defence and security context, de Spiegeleire expanded on the different meanings of risk and uncertainty, noting that *risks* were problems that could be allocated probabilistic numerical values and *uncertainties* were when such actions could not be done. The focus of the defence and security planners has traditionally been on managing risks through operational planning, which deals with risks that are known and can be anticipated. As the environment becomes increasingly unpredictable, there has been a shift towards contingency planning, dealing with real life contingencies that can be detected in the surrounding environment. De Spiegeleire noted that many countries were coming to the conclusion that scenario analyses, while necessary, are no longer sufficient. To address this, foresight planning should take on the elements of being frank, adaptive, responsive, network centric, as well as to accumulate and account for all the knowledge that can be gathered on the matter.

In more complex environments, however, the fundamental element of uncertainty should be taken much more seriously. This encompasses emergent characteristics of systems which are unpredictable and where scenarios will not be of much assistance. De Spiegeleire elaborated on the ways taken to manage this, which included referencing and learning from

many different disciplines that have dealt with uncertain situations. In taking approaches to find their bearings in a complex environment, what is advocated is to build a 'future-base' from different perspectives; this requires engaging in thinking through means of multiple futures instead of being tied to existing boundaries. This method allows for the maintenance of a portfolio of options to deal with the future, encompassing bringing together various groups to build different versions of the future.

In conclusion, de Spiegeleire argued that if today's problems were the result of many emergent factors that were intertwined, the solutions would correspondingly be the emergent solutions of the interactions of different actors. Hence, developing adaptive and agile capabilities was increasingly important.

**Patricia Longstaff's** presentation focused broadly on the topic of resilience, from the resilience that was necessary for military organisations and communities in today's uncertain landscape, to methods that could be taken to break the resilience of organisations such as terrorist outfits. Using the example of the difference between the 'cog-world' and the 'bug-world' to explain the kinds of uncertainty currently faced, Longstaff explained that the former exemplified a situation where there was a variety of components that interacted with each other in predictable ways, whereas the latter described a situation where there were high levels of adaptability between components, making predictions regarding future actions or events extremely difficult.

Where resilience was concerned, major differences exist between resistance and resilience strategies. The former denotes the responsibilities that military organisations have often been charged with, for example, developing strategies to keep enemies away such as building walls around cities. Resilience strategies, on the other hand, are designed to enable societies to withstand and recover from disasters. While there have been various definitions of resilience, what was important to Longstaff was to have in mind the objective that needed to be accomplished. There were two types of resilience: (a) engineering resilience; and (b) ecological resilience. Engineering resilience denotes a swift return to the *status quo*, whereas ecological resilience refers to rebounding to a different situation as a result of adapting to a new reality.

Through an assessment of resilience strategies from different disciplines, Longstaff explained that some

of the key elements that enhance such capabilities include: (a) maintaining diverse options with a focus on inter-operability. This includes being able to use assets in different and creative ways; (b) intervening at the right scale. For instance, although resilient capabilities built at the local level is invaluable in situations such as earthquakes, it is rendered useless if the government is unable to mobilise a rescue mission within the first 48 hours; and (c) maintaining a balance of loose and tightly coupled systems and enhancing adaptive capabilities. This involves maintaining capacities to store and remember vital information.

In considering strategies to reduce the resilience of violent non-state actors, such as al-Qaeda, Longstaff explained that the resilience capacities of such groups would fail when the surprises they encountered were too novel, too fast and too numerous. Another method suggested was to force such organisations to become tightly coupled. In doing so, this eliminated the need for security forces to hit them in multiple places but allowed them to focus their efforts on one area.

In conclusion, Longstaff explained that the most important asset that a community had was a trusted source of information. It was therefore important for governments to identify these trusted sources of information when attempting to deal with uncertain situations. Longstaff advised that finding ways to avoid the blame game was also an important factor in cultivating resilience. This was because engaging in the blame game often hinders attempts to adapt and learn from mistakes.

## Discussion

A participant was interested in the idea of training people to be able to improvise in situations of complexity. De Spiegeleire replied that in the Dutch context, this entailed using unscripted scenarios with a variety of different personnel involved at various levels.

A participant inquired as to whether the idea of resilience would be acceptable among communities as it meant accepting a lower standard of efficiency, which also equated, in some cases, to a lower standard of living. Longstaff responded by saying that this was a necessary trade-off that had to be made, and affected societies would have to deal with the negative impact on efficiency.

## HARNESSING SOCIAL MEDIA IN A NATIONAL SECURITY CRISIS



W. Timothy Coombs

**Timothy Coombs'** presentation discussed how social media could be better-leveraged by governments during national security crises such as disasters. He first observed that social media usage in relation to emergencies and disasters had grown increasingly popular over the last decade. During the 2011 earthquake in Japan for example, many individuals used social media to determine the safety and whereabouts of their loved ones. An analysis of how social media was commonly used by people directly and indirectly affected in a disaster produced the following results: They would often use social media to: (a) gather instructing information (i.e. information on how to protect/help themselves); (b) assist other individuals by providing important information and volunteering help; and (c) aid in the healing, rebuilding and recovery process.

In light of this trend, Coombs noted that the American Red Cross, Google, the US Government and the EU had capitalised on social media to boost relief and disaster recovery efforts. He cited how the US Government had integrated '911' with SMS, and thus could send and receive texts to citizens during crises. Coombs argued that as Singaporeans' knowledge and usage of social media was highly advanced, and the Government was actively using social media as well, the circumstances were highly conducive for social media to be used effectively during emergencies and disasters.

Coombs then identified several ways in which governments could use social media during an

emergency. These included: (a) gathering data for decision making (situational awareness); (b) coordinating rescues; (c) deploying aid; (d) disseminating instructing information to citizens e.g. shelters and evacuation routes; (e) updating conditions; (f) scanning for problems; (g) facilitating recovery; and (h) involving citizens in preparation.

Coombs observed that using social media during emergencies was particularly challenging. Some of these challenges were: (a) difficulty in monitoring social media for information consistency and credibility; (b) integrating emergency phone and social media for monitoring purposes; (c) information overload; (d) improper use by citizens; (e) verifiability of information; (f) security of the system; (g) reliability of the system; and (h) coordinating information. Among the solutions proposed by Coombs were: (a) developing more relevant smart phone applications; (b) training citizens; (c) identifying a list of verified channels and sources; and (d) establishing reasonable expectations.

Coombs concluded his presentation by discussing Project Epic, which is a multi-disciplinary, multi-institutional and multi-lingual research effort to support the information needs of members of the public during times of mass emergency. An innovative outcome of this project was the Tweak the Tweet campaign. This campaign teaches users to format their tweets with specific hashtags, which would then enable the central computer to extract location information, create incident reports and sort such reports into different categories. The processed tweets are then displayed on public web pages in various formats that allow users to view the aggregated information.

### Discussion

A participant inquired as to how governments could deal with the possibility that in an emergency, individuals would rush to use their phones instead of rendering assistance to those around them. Coombs replied that this was a new and serious phenomenon that had no

definitive answer. He suggested that it was essential to adequately train individuals on the proper use of social media during an emergency.

Another participant asked if social media could be said to be truly reliable during an emergency since the ability to use it was entirely dependent upon the integrity and availability of communication systems, which could have been damaged during the disaster. Furthermore, even if the communication system was available, it could potentially fail due to the voluminous tweets/posts that would be transmitted during the crisis. Coombs replied that social media was meant to enhance not

replace existing mass broadcasting systems. Hence, it was reasonable to assume that traditional methods of mass communication would be used foremostly, with social media playing a complimentary role in communication efforts.

Coombs was also asked how information from social media could be filtered effectively to extract only the reliable and important information. He admitted that this task was particularly challenging, and that while there were methods to negate the challenge, such as the Tweak the Tweet campaign from Project Epic, a comprehensive solution was yet unavailable.

### SESSION 3

## COMPLEXITY AND TERRORISM: UNDERSTANDING ADAPTIVE ADVERSARIES



*(from left) Kumar Ramakrishna and Mia Bloom*

**Kumar Ramakrishna** analysed the evolving terrorism threat in Southeast Asia posed by the transnational militant organisation Jemaah Islamiyah (JI) and its associated networks. Drawing on insights provided by complexity theory, he shed light on why terrorist networks continued to regenerate despite sustained strikes against them.

Ramakrishna stressed the importance of understanding the ideology driving JI and its associated networks as it was the central element linking together numerous palpably disparate but related terrorist movements. Essentially, two ideological currents ran through the milieu: the first was al-Qaedaism, which had its proponents supporting a more globalist kind of militant jihad, believing in a cosmic war between Muslims and the Jewish-Crusader alignment,

and deeming civilians with “dirty hands” as legitimate targets of attack. The second was Darul Islamism, which had its proponents shoring up a comparatively more indigenous kind of jihadism predating al-Qaeda that sought to address more local grievances, and which was characterised by inter alia a fear of the extinction of their ‘group tent’ and strong senses of moral entitlement and historic victimisation.

The present threat from JI stemmed not from the structural core but from smaller split factions made up of militants unhappy that the core appeared to be moving away from armed resistance altogether. In February 2010, a militant cell which fashioned itself as an al-Qaeda outfit in Aceh was discovered; led by JI terrorist fugitive Dulmatin, the cell operated around the idea of jihad tandzim, or ‘organised’ jihad, in recognition that an organisation (and a physical base) was crucial to build up capacity to coordinate attacks. Concurrently, other smaller cells with no direct institutional links to the JI core also emerged; these, in contrast, operated around the notion of jihad fardiyah, or ‘individual jihad’, as reflected in operations such as the suicide bombings on a mosque and a church in April and September 2011 and a bomb plot on Bali in March 2012. Such developments underscored how al-Qaedaism and Darul Islamism could amalgamate in unpredictable ways.

Ramakrishna said it was therefore conceptually useful to understand JI and its associated networks as a complex, self-organising and adaptive system – complex, because many independent or semi-independent agents interacted with one another in numerous capricious, non-linear ways; self-organising, because despite the lack of central directives there appeared to be a coherence in activities; and adaptive, because the system continued to endure despite challenges to its continuity. Like a learning machine, such human social networks were more than simply the sum of its individual parts and instead functioned as super-organisms with emergent properties.

Ramakrishna accordingly considered JI and its associated networks a super-organism: the Darul Islam Charismatic Group (DICG). The DICG was a super-organism whose activities were strung together by a common ideology that fed the group's internal logic of survival. Ideology was ultimately the factor that gave the super-organism structure and consistency. Internally self-correcting, the DICG evolved according to environmental pressures and influences which saw to different physical manifestations over the years, including Komando Jihad, JI and Jamaah Anshorut Tauhid (JAT). The DICG possessed a life of its own and an inherent intelligence that complemented individual intelligence; individuals within the group mutually influenced one another without explicitly coordinating their behaviours or knowing one another personally. Ramakrishna henceforth noted the importance of counter-ideology efforts as the DICG's ideology was the glue that held the super-organism together.

**Mia Bloom** spoke about a new computational mapping tool called the Competitive Adaptation in Terrorism Networks that could help analysts better understand how adaptations and innovations occurred in terrorist and counterterrorist organisational structures, and more significantly, how they reacted to changes in one another. The tool modelled the social, psychological and cultural properties of adaptive militant networks, allowing analysts to see how nodes could change in an event of a major attack, a death of a terrorist leader, a counterterrorist raid, or a policy shift by the government.

Bloom went on to describe how the mapping tool worked. She explained that a multidisciplinary approach that integrated, among others, social science and graphic

data, qualitative and semantic network analyses and dynamic network analysis (DNA) were used to develop ethnographically validated models of adversarial behaviour. Bloom emphasised the importance of primary information – i.e. interviews with disengaged terrorists as well as counterterrorist officials – in the mapping process. The point was not only to be able to predict organisational changes but to also get a sense of the speed of, and sensitivity to, changes between one group and the other.

Drawing on interviews with former members of the Irish Republican Army (IRA) movement and members of the counterterrorist force, Bloom illustrated how the two sides adapted to each other. Members of the IRA, for example, had learned to become more surveillance-aware; instead of packing explosives in bags to place on roadsides, they would insert explosive materials in traffic cones or other things that would not appear too out-of-place with everyday roadside materials. Also, members had learned that they functioned best in smaller operational cell structures in order to protect the rest of the group should someone get caught. The counterterrorist forces on the other hand, learned that they had to be extremely careful when it came to information gathering and protecting informants, and when allowing terrorist plans to develop as far as they could without letting the operations be successful. Bloom noted that the IRA learned faster and adapted quicker to dynamic forces than the counterterrorist forces because the latter were generally more constrained by law and order, standard operating procedures and bureaucratic policies.

Lessons from the IRA continued to be relevant today because studying their tactics provided counterterrorist practitioners elsewhere with the opportunity to envision ways they could stay ahead of the potential threat curve; the IRA had been the first to use car bombs, position women on the front lines, incorporate the culture of martyrdom to their cause, and led the way with youth wings. Further, as counterterrorism operations needed to be tailored according to terrain, lessons from the rural and urban Northern Ireland context had applicability for the current situation in the rural context in Afghanistan and the urban context in Iraq. Additionally, the case of the IRA served as a reminder that even when peace had been achieved there might still be a few skirmishes with splinter cells in the future.

Bloom concluded by underscoring the importance of anticipating new threat developments, and briefly shared her upcoming research on children and terrorism. Some of the issues she would address included how and why children could become involved in terrorism, how terrorism could appeal to children, and what could be the long-term effects on society in which children played a role in political violence.

## Discussion

A participant pointed out that there appeared to be a degree of linearity and determinism in the way both researches were conducted. Suggesting comparisons between terrorism research and cancer research, he said ideology and organisational structures could evolve and mutate in greatly erratic and unpredictable fashion, and he wondered to what extent the real essence of complexity featured in the analyses.

In response to the comment on ideology, Ramakrishna said that from a counterterrorism perspective – which meant there were also policy and cost-effectiveness angles – the focus on the ideological frame of this complex DICG made sense. The ideological frame encompassed detailing the problem the group faced, who caused the problem for the group, and what to do about the problem. The solution, which was armed resistance, was essentially informed by the ideological frame, so that would be where counterterrorism resources should be focused. Bloom, in response to the comment on organisational structures, said that it was indeed possible to actually

see the differences within the computer model when a change happened to an organisation, as was seen with the death of Osama bin Laden, for example. Further, the model was not simply based on interviews with terrorists and counterterrorism experts/practitioners but also on group statements, news articles, journalistic accounts and academic researches; with cross-references as well as verification and validity checks, good information was fed into the map.

Another participant asked what the root causes of terrorism were. Bloom said that when it came to engaging in terrorism, it would be fallacious to think in terms of root causes. For example, while Palestinians under occupation do feel humiliated by the Israelis, and are generally poor, the number who joined militant organisations or turned to violence remained small. This suggested that there had to be other intervening variables. A useful starting point would be to assess the push and pull factors that encourage people to engage in terrorism. Terrorism was a fairly complex phenomenon and it required great amount of thought on the part of any individual to take up arms. She pointed out that not everyone who decided to engage in violence were necessarily radicals and that different individuals had different reasons to get involved. Ramakrishna said the reasons behind why some individuals become terrorists were situationally dependent. He believed it more useful to think about the issue based on three extant factors: first, the presence of grievances; second, the existence of an ideological framework; and third, an enabling environment.

## LUNCH LECTURE

# COUNTERING RADICAL IDEOLOGY IN A COMPLEX NATIONAL SECURITY ENVIRONMENT: REFLECTIONS ON THE RRG



*Mohamed Feisal bin Mohamed Hassan*

**Mohamed Feisal bin Mohamed Hassan** presented on the workings of Singapore's Religious Rehabilitation Group (RRG) and the role it has been playing in assisting the government's counterterrorism efforts. The RRG is a voluntary group of Singaporean religious teachers and scholars who aim to rectify misinterpreted political ideologies based on Islam. Its primary role is to help rehabilitate and provide religious counselling for Jemaah Islamiyah (JI) detainees in Singapore and their family members.

The RRG came to being after the first arrests of Singaporean JI members in December 2001. The authorities had, at the outset, realised that they were not fully capable of dealing with the JI threat as they recognised there was an ideological aspect to the issue that necessitated the involvements of highly qualified and respected members of the religious community. Today, the RRG has close to forty volunteers who are mainly graduates of local madrasahs; some have even gone on to undertake postgraduate degrees specialising in counter-ideology research. All RRG volunteers also receive training to be counsellors as well as other relevant educational programmes that keeps them up-to-date with dynamic developments on the ground, particularly with regard to a constantly evolving extremist ideology. With emerging threat trends such as individuals radicalising over the internet and the proliferation of extremist materials online, the RRG needs to constantly remain aware.

From their meetings with JI detainees, the RRG had learned that there was no single terrorist profile, and that ideology was central when it came to winning hearts and minds. Feisal explained that many of the individuals he met were misled in their quest for spiritual renewal. In their search to fill up a void in their hearts, they found a religious discourse espousing a decidedly political objective over and above teachings that imbued in them uncompromising understandings of love (for their *amir*, fellow members and others who supported and sympathised with their cause) and hate (for all non-Muslims as well as Muslims who did not support or sympathise with their cause); pledging allegiance to their leaders; setting up clandestine organisations; and recruiting like-minded individuals to revolutionise the world through armed resistance. The RRG's rehabilitation and religious counselling sessions not only sought to understand how such distorted views became structured into their faiths but to challenge their ways of thinking as well.

Thus far, the RRG had carried out more than 1,500 counselling sessions for detainees and their family members. Once the RRG volunteers established the kinds of extremist sentiments the detainees held, they sought to replace misconstrued Islamic concepts with proper ones, providing the necessary contextual understanding of Islam by detailing the Islamic intellectual heritage. They also helped the detainees understand the reality of the context within which they lived and how they could practically live out their faiths within it.

The RRG also involved itself in community engagement programmes and partnered with government agencies, tertiary institutions, media outlets and community-based learning groups to help inoculate the wider community against extremist ideologies. Mohamed Feisal believed that it was necessary to continually foster a close working relationship between the government and the religious community in order to adequately address the problem of extremism in Singapore.

## Discussion

A participant wondered what metrics could be used to measure success in works focused on counter-ideology. Feisal was cognisant that there was no one-size-fits-all approach and that culture, which included a country's history and even infrastructure, essentially defined the rehabilitation and counselling programmes. As such, the Singapore model could not be applied in its entirety elsewhere. But there were still some areas in counter-ideology that could be shared across countries.

In response to a question regarding the shortcomings of the RRG, Feisal said it would be more useful to consider such inadequacies as lessons rather than failures because, ultimately, the RRG was not formed to prove that it could be a success, rather, it was primarily about winning hearts and minds. He noted that about eighty percent of the detainees with whom the RRG had contact with had already been released and reintegrated back into society. The RRG could only improve as it moved forward.

## SCENARIO PLANNING IN THE SINGAPORE PUBLIC SERVICE



*Tan Chee Seng*

In his presentation, **Tan Chee Seng** from the Strategic Policy Office (SPO)/Centre for Strategic Futures (CSF) discussed the work undertaken by his office. He said that SPO's and CSF's primary mission was to help shape a forward-looking civil service by facilitating long-term planning through common futures thinking methodology and coordinating strategies of ministries for complex cross-ministry issues. SPO/CSF's tasks primarily involved futures-related work and strategic planning.

In terms of futures related work, these included: (a) long term planning/trends analysis; (b) scenario planning exercises; (c) futures-related projects (Wildcards/Black Swans); and (d) futures training and consultancies. Tan then elaborated on scenario analysis, and described it as a tool for structuring thinking and discussion about the future. Scenario analysis/planning differed from traditional planning methodology as the latter was based on surfacing and challenging assumptions and focussed on identifying driving forces and uncertainties,

whereas the former, was premised on assumptions and focussed on deriving predictions and forecasts. The main advantages of scenario analysis were observable in: (a) strategy; (b) tactical; and (c) planning. In terms of strategy, this methodology enabled analysts to break 'one-track' mind-sets; clarify their thinking; challenge existing assumptions; understand driving forces; and improve the overall quality of strategic thinking. With regards to the tactical, it allowed analysts to develop sensitivity/alertness and shorten reaction time. In reference to planning, it enabled analysts to test robust strategies and make risks transparent. Tan stressed that the most important part in scenario planning was not the scenarios themselves, but the insights gained in the process of developing these scenarios.

With regards to strategic planning, this came under the purview of the CSF. The Centre undertook experimentation and discovery activities to expand its toolkit for futures-thinking and strategising. It also assisted in developing local and global networks to tap into diverse and alternative views that challenge current mental models. Furthermore, it was involved in capability-building across government through training and consultancies with other agencies and ministries. Tan proceeded to discuss the Singapore Emerging Strategic Issues Project, which was a joint effort by the Government of Singapore and GBN/Monitor 360 to develop a comprehensive Emerging Issues program and identify Emerging Issues that matter. This project identified three EMI's that would have a significant impact on Singapore. These were: (a) Singapore's future as a stopover along the major trade

route between West and East; (b) advances in technology particularly human augmentation; and (c) resource constraints brought about by water conflicts, crises and pandemics and increases in the price of food.

## Discussion

A participant asked if SPO's activities had resulted in an actual change in Government policy. Tan responded that it was difficult to say with any degree of certainty that

SPO's recommendations had resulted in a policy change. This was because policy change was often premised on other factors in addition to SPO's research findings.

Another participant asked if policymakers were convinced of the utility of the cutting-edge approaches and methodologies used by SPO. Tan responded that initially, there was much scepticism, but eventually, some policymakers did see the benefit of SPO's approaches and came to appreciate it.

## SESSION 4

# COMPLEXITY AND CYBERSECURITY: ENGINEERING RESILIENT REGIMES



(from left) Nigel Phair and Rex Hughes

**Nigel Phair's** presentation focussed on how cybersecurity regimes could be made more resilient. He began by providing an overview of how consumers' online habits had changed over the last decade. He noted that: (a) Smartphones had outsold PCs in 2011; (b) tablet devices are expected to outsell PCs in approximately two to three years; and (c) there was vigorous competition between operating systems i.e. Android vs iOS vs Blackberry vs Microsoft. He also observed that consumers now used mobile phones to: (a) consume content; (b) look at advertisements; (c) listen to music; (d) do online shopping; and (e) download applications (apps).

Next, Phair discussed the trends and implications of today's cybersecurity environment. These included: (a) cybersecurity was traditionally focused on critical infrastructure protection; (b) the responsibility to protect assets must be shared between owners and operators of

critical infrastructure and government; (c) cybersecurity should focus on resilience rather than protection; and (d) cyberthreats are wide ranging.

Phair then identified the sources of modern cyberthreats: (a) nation states; (b) activists; (c) criminals; and (d) ideologically-motivated hackers. He also drew attention to *Cloud* computing and the potential risks and security implications associated with it.

Phair suggested that in order to enhance cybersecurity, organisations should: (a) increase their detection capabilities paying particular attention to the inflow and outflow of data especially from internal sources; (b) increase diversity by concentrating risk in the hands of more than two IT suppliers; and (c) use deception by being 'tricky' with the organisation's network architecture.

Phair concluded his presentation by discussing the feasibility of establishing an organisation that provides accreditation to companies and sole-proprietors that provide penetration testing services. This was envisaged to improve standards and ensure better regulation of the industry. The Council of Registered Ethical Security Testers (CREST) in Australia was one such organisation. It collaborates with industry to bring "a demonstrable level of expertise and professionalism to security and penetration testing through the provision of a recognised body for industry to express their security testing needs".

The CREST scheme is comprised of two tracks: (a) company assessment; and (b) individual tester certification. This provides two layers of assurance that the penetration testing provider is capable of understanding a company's unique security posture and providing up to date recommendations on security improvements. The company assessment and membership provides assurance around methodologies, tests hygiene and conduct. Individual certifications provide assurance that the individuals carrying out the test have the appropriate experience and skill.

**Rex Hughes'** presentation offered an alternative view of how cybersecurity regimes could be made more resilient. He first provided a brief overview of the cybersecurity landscape, and then demonstrated the ease with which cybercrime could be committed via a short video clip. The video showed how a worm/Trojan horse virus hidden on a thumb drive and activated unknowingly by an employee could cause severe paralysis and dysfunction within an organisation.

Hughes proceeded to discuss the nature and characteristics of contemporary cyberthreats, and used the Wikileaks and the Anonymous phenomenon to illustrate. Wikileaks is an online international organisation that publishes confidential and classified material from various sources such as news leaks and whistle-blowers. Major Wikileaks documents include: (a) The US diplomatic cables leak in 2010; and (b) The Guantanamo Bay files leak in 2011. Expectedly, the publication of such documents caused severe embarrassment to the officials and countries involved. Anonymous is a decentralised online community that has become increasingly associated with international hacktivism. Anonymous often undertakes online protests and actions (hacks) against private and public sector organisations, international organisations and governments that are deemed oppressive by the collective. Anonymous' targets have included: The UN Cyber Law website; the Chinese Police; Newark Police Foundation; Bank of America; US Department of Homeland Security; The El Salvadorian President's homepage; Interpol and Amazon.com.

Hughes then identified several principles that would make cybersecurity regimes more resilient: (a) *Leadership*: CEO-level awareness and leadership of cyber risk management; (b) *Interdependence*: All parties have a role in fostering a resilient shared cyberspace; (c) *Physical*

*and Virtual*: Integrated Risk Management; and (d) *Incentives*: Encourage suppliers and customers to meet common criteria.

Hughes also discussed how global hubs could be better insulated against cyberthreats. He suggested: (a) increasing situational awareness; (b) increasing diversity of networks; (c) increasing public-private partnerships; (d) reducing risk liability; (e) developing/re-evaluating regulations for the internet, social media and usage of *SMART* applications; and (f) increasing *Cloud* security.

Hughes concluded his presentation by discussing the Cambridge cyber defence project. The project was established in 2011 with financial assistance from the NATO Science Grant. It aims to unite policymakers and business leaders with scientists and technologists to develop a nuanced and interdisciplinary response to the perceived and real cyber threats. The expected products that would emanate from the project were research output and consultancy. In terms of consultancy, team members are able to provide pre-policy conceptualisation and mapping.

## Discussion

A participant inquired as to whether countries should develop codes of conduct for online engagement as well as implement a cybersecurity framework that would govern online relations between countries.

Phair argued that, ideally, cybernorms should not be created as the same rules of behaviour that exist in the real world apply to cyberspace. Cyberspace, he stressed, was merely an extension of society and not a separate environment. Individuals should therefore be made more aware of this reality and encouraged to change their behaviour accordingly. Hughes admitted that implementing a global regulatory framework was extremely challenging and might be counterproductive in the long run. This was because businesses and states might react negatively to the framework, and existing relations might be jeopardised as a result.

Another participant asked the panel for suggestions on how to develop a comprehensive cybersecurity policy that would account for the complex interactions between cyber and all other facets of society.

Phair replied that at the outset there should be inter-departmental collaboration and consultation within the government to ascertain overall policy objectives and strategies. Furthermore, input from businesses in the private sector and even ordinary citizens should be obtained. He stressed that for the policy and strategies

to be effective, the capabilities and competencies at the departmental and individual levels had to be enhanced as well. Hughes added that more forums that bring representatives from the private and public sector together should be organised to tap the expertise and discover innovative ideas for policymaking.

**DISTINGUISHED DINNER LECTURE**  
**WHY THE WEST RULES – FOR NOW: SECURITY**  
**CHALLENGES IN THE 21<sup>ST</sup> CENTURY**



*(from left) Barry Desker and Ian Morris*

**Ian Morris'** presentation was premised on a long-term view of history in tracing macro scale patterns that emerged from micro scale interactions and activities. Beginning with an examination of a linear theory of history that was based on the exceptionalism of western civilisation, Morris devised an index of social development that measured four traits: (a) per capita energy capture; (b) social organisations of societies; (c) levels of information technology; and (d) war-making capacities. Using the index to measure social development in Eastern and Western civilisations 15,000 years ago, it was discovered that the main driver of such development was geography. This presented a complex picture of historical development for while geography played a big part in determining the social development of civilisations, social development, in turn, acted to change the meaning of geography altogether.

This was noticeable in the way two major inventions were used: (a) the ship (invented by the Chinese in the 15<sup>th</sup> century); and (b) the gun. Both inventions spread throughout the world quickly, changing the meanings of geography especially for the Europeans, who were able to conquer the Americas and set up profitable trade routes. Led by the new boundaries and questions posed by geography on their circumstances, the Europeans achieved breakthroughs in numerous fields which coalesced in the Enlightenment in the 18<sup>th</sup> century and the industrial revolution for Britain in the 1800s. The changing meanings of geography, however, saw the United States assume a dominant role by the middle of the 20<sup>th</sup> century, and recently enabled East Asian countries such as Japan and China to rise.

For Morris, patterns of history reveal important changes ahead in the 21<sup>st</sup> century. Noting that the rate of social development looked set to rise dramatically, he posited that this century would witness an unimaginable scale of change that would expose the limitations of thinking in a linear way about history. In particular, technological and bio-engineering changes were poised to revolutionise the security landscape. Inventions such as the pace-maker and carbon-fibre prosthetics were already changing the way human beings are defined. This posed challenges to security practitioners as what are now thought of as risks and threats, look set to be irrelevant in light of the pace of technology-driven transformations.

CENTRE OF EXCELLENCE FOR NATIONAL SECURITY



**S. RAJARATNAM SCHOOL  
OF INTERNATIONAL STUDIES**  
A Graduate School of Nanyang Technological University



*6th Asia-Pacific Programme  
For Senior National Security Officers  
9th - 13th April 2012  
The Sentosa Resort and Spa, Singapore*



## NATIONAL SECURITY COORDINATION SECRETARIAT



**(L to R)**

**Seated:** COL Loh Kean Wah, Mr Jan Vasbinder, Dr Magnus Ranstorp, Mr Nigel Phair, Mr Tan Pheng Hock, Prof Joseph Liow, Prof W. Timothy Coombs, Mr Yeong Gah Hou, Mr Benny Lim, Mr Eddie Teo, DPM Teo Chee Hean, Amb Barry Desker, Mr Peter Ho, COMR Eric Yap Wee Teck, Prof Ian Morris, Assoc Prof Kumar Ramakrishna, Dr Stephan De Spiegeleire, Dr Mia Bloom, Dr Rex Hughes, Prof Patricia Longstaff, Mr Mohamed Feisal bin Mohamed Hassan

**2nd Row:** Supt (APF) Kui Yong Sin, Mr H. Renan Sekeroglu, Mr Martin Khoo, Mr Yentieng Puthira, COL Saleh Alkhalidi, Supt Chua Boon Hwee, Mr Haji Ali Rahim Abd Rahman, Dato Abd. Rashid bin Harun, LTC Yeoh Keat Hoe, Ms Grace Chia, Mr Hirohisa Mori, AC Evelyn Loh Khuek Lan, Supt Angie Wong, COL Michael B.J. Manquiquis, Supt Anthony Yap, COL Tran Nhan Nghia, LTC Liu Lin, Mr Ng Lup Houh, Mr Akshay Joshi, Mr Thomas Ng E Siong, COL Ho Foo Sing, COL Ronny Asnawi Asri

**3rd Row:** DSP Saherly Limat, Mrs Lim Thian Loke, Mr Adam Teo Fenn Yih, Mr Chia Puay Long, Supt Koh Wei Lin Wendy, LTC Tan Hong Teck, Mr Tan Soon Lee, COL Lu Lu Than, Ms Chern Jing Yee, Mr Lai Kah Wah, Mr Sisomxay Keobounphanh, Mr Leong Ming Wei, Supt Tan Geok Soon Theodore, DSP Sim Chun Yong, Mr Narong Boonsatheanwong, Mr James Kwok Chee Khan, Mr Ricky Wee

**4th Row:** Mr Lim Chen Chye, Mr Loh Leong Beng, Mr Nicholas Lum, Mr Yann Jounot, Mr Daryl Hayes, Mr Bernard Miranda, Mr Marcus Brixskiöld, ME6 Eric Gregory Wong, LTC Colin Chiok, Mr Chua Soy Tee, Mr Bold Sukh-Ochir, COL Chew Chee Mun, Mr Lee Jaehyon, Mr Calvin Tan, Mr Christian Catrina, Supt Rockey Francisco Junior



## Discussion

A participant raised a question regarding the similarities in developments between the East and West. According to Morris, while geography made a significant difference, the paths of development were mostly similar around the world, albeit differing slightly in terms of time frame. Western social development scores have been higher over time, due in part to the fact that resources were denser at the Western end of Eurasia and biological factors more favourable. This meant that there were fewer genetical steps needed to domesticate plants and animals in that area.

In answer to a question as to whether societies would continue to exponentially grow or reach a point

of stagnation, Morris noted that each method of organising a society had a ceiling that prevented it from further progress. For example, according to the social development index, hunter gatherer societies could only develop up to 5 points and ancient agricultural societies had a ceiling of approximately 40 points. The only way to break through this ceiling was to go through a revolution, such as the industrial revolution in Europe.

A participant inquired about the role of ideas in relation to development and progress. Morris explained that while factors such as culture, ideas and values were important, these were driven by the changing meanings of geography. Ideas, he maintained, are often based on reactions to problems. As such, they do not cause development but rather are the result of development.

## SESSION 5

### RESILIENT POST-DISASTER SOCIAL AND ECONOMIC RECOVERY MECHANISMS



(from left) Magnus Ranstorp and Yoshioka Tatsuya

**Magnus Ranstorp's** presentation discussed the terror attacks committed by Anders Breivik in Norway and their implications for social resilience, multiculturalism and community-based relations in Europe. Ranstorp began by giving a broad overview of the European Union's counter-terrorism strategy, which was designed to enable people to "go about their normal business, freely and with confidence". The strategy contained five elements: (a) Prepare; (b) Protect; (c) Pursuit; and (d) Respond. For (a) and (b) the overarching objective was to counter radicalisation and disrupt terrorist recruitment attempts. With regards to (c) and (d), the overall objective was to prevent the polarisation of society.

Ranstorp then provided details of the Breivik terror attacks, and briefly discussed Breivik's activities before, during and after the attacks. Breivik had used a one tonne fertilizer bomb, which he detonated in the government district of Oslo, killing eight people and destroying 2,000 offices of eight government ministries. He then drove up to the island of Utoya disguised as a police officer, where he killed 69 youth. His "counter-jihad ideology", revealed in his manifesto entitled *2083 – A European Declaration of Independence*, portrayed Muslims and cultural Marxists as enemies, and advocated the deportation of all Muslims from Europe. It also promoted conservatism, ultra-nationalism, and anti-feminism. Breivik's main sources of income stemmed from selling fake diplomas online and credit card fraud.

Ranstorp also shed light on the operational errors made by the Norwegian Police in their response to the attacks. These included: (a) the overreliance on SWAT instead of the Active Shooter Protocol; (b) the absence of helicopters that prevented them from reaching the island quickly; (c) the overloading of the police boat which nearly capsized as a result; and (d) the breakdown of the emergency phone system. Such errors ultimately caused many to question the competency, effectiveness and efficiency

of the police. Despite these setbacks, Ranstorp observed that Norwegian society, nevertheless, displayed strong resilience in the face of this tragedy.

Ranstorp emphasised that resilience and national unity could not be taken for granted and could not be initiated during a crisis, but rather, it took time to develop. He noted that building trust within the community required extensive time and investment, and could not be premised on the securitisation of community relationships.

Ranstorp concluded his presentation by identifying several lessons for bolstering national resilience. These included: (a) understanding the intersection between the internet and the dynamics of 'glocal' processes; (b) community buy-in will depend on local communities' recognition that an extremist problem exists; (c) engagement with communities should not only be done through a counterterrorism prism; and (d) community based approaches are essential to countering violent extremism.

**Yoshioka Tatsuya's** presentation provided an overview of Peace Boat's activities and experiences in disaster relief and management. Peace Boat is a Japan-based international non-governmental and non-profit organisation that works to promote peace, human rights, equal and sustainable development and respect for the environment. Peace Boat seeks to create awareness and action based on effecting positive social and political change in the world. This is pursued through the organisation of global educational programmes, responsible travel, cooperative projects and advocacy activities. Peace Boat's activities are conducted in partnership with other civil society organisations and communities in Japan, Northeast Asia, and around the globe. Peace Boat activities are carried out primarily through a chartered passenger ship, which sails to various countries on 'peace voyages'. The ship "creates a neutral, mobile space and enables people to engage across borders in dialogue and mutual cooperation at sea, and in the ports" that are visited.

Tatsuya then discussed Peace Boat's involvement in the relief efforts following the Great East Japan Earthquake and Tsunami in 2011. He explained how Peace Boat volunteers rendered assistance to those affected by

the disaster, particularly in terms of removing debris, rebuilding communities and helping individuals cope with the tragedy. Tatsuya was critical of the Japanese government's relief efforts as it took over three months before hot meals could be distributed to those affected despite assistance from non-governmental organisations and foreign countries.

He observed that while foreign governments were eager to offer additional assistance, the Japanese government had to decline such help due in part to the lack of administrative structures and linguistic skills. Nevertheless, Tatsuya acknowledged the assistance provided by the US military, which deployed approximately 25,000 personnel to the affected region. This assistance generated goodwill between the Japanese and the US military especially since relations had been strained over the controversy surrounding the US base in Okinawa. Tatsuya concluded that rendering aid during crisis/disasters could help improve relationships between governments and between people as such activity built confidence between parties.

Tatsuya concluded his presentation by identifying several lessons learnt from Peace Boat's relief efforts during the Japanese earthquake and tsunami. These were: (a) collaboration between national government, regional governments, civil society (NGOs) and corporations was essential; (b) systematisation of training volunteers, volunteer leaders and coordinators was imperative; (c) a comprehensive disaster relief body needed to be established that comprised the Japanese Self-Defence Forces (JSDF), Police and Fire Departments; (d) the capacity to receive international volunteers had to be strengthened; and (e) a nuclear power plant accident countermeasure agency had to be established.

## Discussion

A participant inquired as to whether Breivik suffered from a mental illness that caused him to perpetrate the attacks.

Ranstorp, admitted at the outset that he was not a psychologist, and could not comment on Breivik's mental health. However, he revealed that initial tests did suggest that Breivik was psychotic. Subsequent tests suggested

that he was not psychotic but was possibly afflicted with a personality disorder – extreme narcissism. Ranstorp believed that Breivik was intelligent, capable and dangerous as his rhetoric was cleverly crafted, and had the potential to polarise society.

Another participant inquired about the Japanese Self-Defence Forces (JSDF) involvement with disaster relief work, and in particular whether they were involved in

the community rebuilding process and at what level they cooperated with civil society organisations.

Tatsuya replied that the JSDF had become more operationally-ready, and had improved their response time since the Kobe Earthquake in 1995. He could not provide specific details on how the JSDF collaborated with civil society organisations but stressed that such cooperation was extremely important.

# PROGRAMME

## SUNDAY, 8 APRIL 2012

0001 – 2359hrs **Arrival of Speakers & Participants**

Venue: The Sentosa Resort and Spa

1500 – 1730hrs **Registration of Speakers & Participants**

Venue: Conference Secretariat  
Kusu Room,  
The Sentosa Resort and Spa

1900 – 2130hrs **Welcome Dinner**

Hosted by: **Barry Desker**, Dean,  
S. Rajaratnam School of  
International Studies (RSIS),  
Nanyang Technological  
University (NTU)

**Loh Kean Wah**, Deputy  
Director (Policy and  
International Relations),  
National Security  
Coordination Centre (NSCC),  
Prime Minister's Office,  
Singapore

Venue: Poolside,  
The Sentosa Resort and Spa

Attire: Casual (short-sleeved shirt/  
polo t-shirt) and  
equivalent attire for women

## MONDAY, 9 APRIL 2012

0730 – 0900hrs **Breakfast**

Venue: The Terrace Restaurant,  
The Sentosa Resort and Spa

0900 – 0955hrs **Arrival of guests**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Military attire/service dress  
(jacket with tie and head-dress)  
for officers;  
lounge suit with tie for  
civilians and equivalent attire  
for women

0955 – 1000hrs **All guests to be seated**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Military attire/service dress  
(jacket with tie and head-dress)  
for officers;  
lounge suit with tie for civilians  
and equivalent attire  
for women

1005hrs **Arrival of Guest-of-Honour**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Military attire/service dress  
(jacket with tie and head-dress)  
for officers;  
lounge suit with tie for civilians  
and equivalent attire  
for women

1010 – 1020hrs **Opening Remarks**

Opening Remarks by **Barry Desker**,  
Dean, S. Rajaratnam School of  
International Studies (RSIS),  
Nanyang Technological University (NTU),  
Singapore

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Military attire/service dress  
(jacket with tie and head-dress)  
for officers;  
lounge suit with tie for civilians  
and equivalent attire  
for women

- 1020 – 1040hrs **Opening Address**  
 Opening Address by **Teo Chee Hean**,  
 Deputy Prime Minister, Coordinating  
 Minister for National Security and  
 Minister for Home Affairs, Singapore  
 Venue: The Straits Ballroom,  
 The Sentosa Resort and Spa  
 Attire: Military attire/service dress  
 (jacket with tie and head-dress)  
 for officers;  
 lounge suit with tie for civilians  
 and equivalent attire  
 for women
- 1040 – 1115hrs **Reception / Coffee Break**  
 Venue: Straits Verandah,  
 The Sentosa Resort and Spa  
 Attire: Military attire/service dress  
 (jacket with tie and head-dress)  
 for officers;  
 lounge suit with tie for civilians  
 and equivalent attire  
 for women
- 1115 – 1135hrs **Group Photo-taking**  
 Venue: Beaufort Ballroom I,  
 The Sentosa Resort and Spa  
 Attire: Military attire/service dress  
 (jacket with tie and head-dress)  
 for officers;  
 lounge suit with tie for civilians  
 and equivalent attire  
 for women
- 1135 – 1145hrs **Local Participants briefing**  
 Briefing by **Loh Kean Wah**,  
 Deputy Director  
 (Policy & International Relations),  
 National Security Coordination Centre,  
 Prime Minister's Office, Singapore  
 Venue: Beaufort Ballroom I,  
 The Sentosa Resort and Spa  
 Attire: Military attire/service dress  
 (jacket with tie and head-dress)  
 for officers;  
 lounge suit with tie for civilians  
 and equivalent attire  
 for women
- 1145 – 1215hrs **Introduction to RSIS, CENS  
 and APPSNO**  
 Presenter: **Kumar Ramakrishna**, Head,  
 Centre of Excellence for  
 National Security (CENS),  
 RSIS, NTU  
 Venue: The Straits Ballroom,  
 The Sentosa Resort and Spa  
 Attire: Smart casual (long-sleeved  
 shirt without tie) and  
 equivalent attire for women
- 1215 – 1400hrs **Lunch Lecture: Complexity and  
 Policymaking:  
 Challenges and  
 Opportunities**  
 Venue: The Beaufort Ballroom,  
 The Sentosa Resort and Spa  
 Attire: Smart casual (long-sleeved  
 shirt without tie) and  
 equivalent attire for women  
 Chairperson: **Joseph Liow**,  
 Associate Dean, RSIS, NTU
- Speaker: **Jan Vasbinder**, Director,  
 Complexity Programme, NTU
- 1400 – 1445hrs **Session I: Singapore's Strategic  
 Framework for  
 National Security**  
 Venue: The Straits Ballroom,  
 The Sentosa Resort and Spa  
 Attire: Smart casual (long-sleeved  
 shirt without tie) and  
 equivalent attire for women  
 Chairperson: **Kumar Ramakrishna**,  
 Head,  
 Centre of Excellence for  
 National Security (CENS),  
 RSIS, NTU
- Speaker: **Loh Kean Wah**,  
 Deputy Director  
 (Policy and International  
 Relations), National Security  
 Coordination Centre (NSCC),  
 Prime Minister's Office,  
 Singapore

Question and Answer Session

- 1445 – 1455hrs **Coffee Break**  
 Venue: Straits Verandah,  
 The Sentosa Resort and Spa  
 Attire: Smart casual (long-sleeved  
 shirt without tie) and  
 equivalent attire for women
- 1455 – 1500hrs **Heritage Walk**  
 Venue: Meet at The Sentosa Resort &  
 Spa Conference Lobby  
 Attire: Casual (APPSNO T-shirt) and  
 equivalent attire for women.  
 No shorts and slippers
- 1500 – 1930hrs **“In Search of the Singha™” –  
 A Fort Canning Hill / Singapore River  
 Walk + Bum Boat Ride**  
 Attire: Casual (APPSNO T-shirt) and  
 equivalent attire for women.  
 No shorts and slippers
- 1930hrs **Networking Dinner**  
 Venue: AquaMarine,  
 Marina Mandarin Hotel  
 Attire: Casual (APPSNO T-Shirt) and  
 equivalent attire for women.  
 No shorts and slippers

## TUESDAY, 10 APRIL 2012

- 0730 – 0900hrs **Breakfast**  
 Venue: The Terrace Restaurant,  
 The Sentosa Resort and Spa
- 0900 – 1030hrs **Foreign Participants’ Presentation  
 on Homeland Security  
 Management (HSM)**  
*(Australia / Brunei / Cambodia / China /  
 France / India / Indonesia / Japan)*  
 Venue: The Straits Ballroom,  
 The Sentosa Resort and Spa  
 Attire: Smart casual (long-sleeved  
 shirt without tie) and  
 equivalent attire for women

- 1030 – 1045hrs **Coffee Break**  
 Venue: Straits Verandah,  
 The Sentosa Resort and Spa  
 Attire: Smart casual (long-sleeved  
 shirt without tie)
- 1045 – 1215hrs **Session II: Embracing Complexity in  
 National Security**  
 Venue: The Straits Ballroom,  
 The Sentosa Resort and Spa  
 Attire: Smart casual (long-sleeved  
 shirt without tie) and  
 equivalent attire for women  
 Chairperson: **Norman Vasu**,  
 Deputy Head, Centre of  
 Excellence for National  
 Security (CENS), RSIS, NTU
- Speakers: **STRONG in the 21<sup>st</sup> Century:  
 Strategic Orientation and  
 Navigation Guidance in  
 the Age of Complexity** by  
**Stephan de Spiegeleire**,  
 Senior Defense Scientist,  
 Hague Centre for  
 Security Studies
- Embracing Complexity in  
 National Security: The Role  
 of Resilience** by  
**Patricia Longstaff**,  
 Professor, S.I. Newhouse  
 School of Public  
 Communications,  
 Syracuse University
- Question and Answer Session
- 1215 – 1330hrs **Lunch**  
 Venue: Straits Verandah,  
 The Sentosa Resort and Spa  
 Attire: Smart casual (long-sleeved  
 shirt without tie) and  
 equivalent attire for women

1330 – 1430hrs **Syndicate Discussions**

**Syndicate 1**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

**Syndicate 2**

Venue: Nutmeg I,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

**Syndicate 3**

Venue: Nutmeg II,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1430 – 1500hrs **Coffee Break**

Venue: Straits Verandah,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1500 – 1830hrs **Free and Easy**

1900 – 2000hrs **2<sup>nd</sup> APPSNO Alumni Dinner Lecture  
Cocktail Reception**

Venue: The Beaufort Ballroom,  
The Sentosa Resort and Spa  
Attire: Office attire and  
equivalent attire for women

2000 – 2115hrs **Lecture:  
Harnessing Social Media in a  
National Security Crisis**

Venue: The Beaufort Ballroom,  
The Sentosa Resort and Spa  
Attire: Office attire and  
equivalent attire for women

Chairperson: **Kumar Ramakrishna**,  
Head,  
Centre of Excellence for  
National Security (CENS),  
RSIS, NTU

Speaker: **W. Timothy Coombs**,  
Professor,  
Nicholson School of  
Communication,  
University of Central Florida

Question and Answer Session

2115 – 2230hrs **Dinner**

Venue: The Beaufort Ballroom,  
The Sentosa Resort and Spa  
Attire: Office attire and  
equivalent attire for women

**WEDNESDAY, 11 APRIL 2012**

0730 – 0900hrs **Breakfast**

Venue: The Terrace Restaurant,  
The Sentosa Resort and Spa

0900 – 1030hrs **Foreign Participants' Presentation  
on Homeland Security  
Management (HSM)**

*(Laos / Malaysia / Mongolia / Myanmar /  
Netherlands / Philippines /  
Republic of Korea / Saudi Arabia)*

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1030 – 1045hrs **Coffee Break**

Venue: Straits Verandah,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie)

1045 – 1215hrs **Session III: Complexity and Terrorism:  
Understanding Adaptive  
Adversaries**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

Chairperson: **Bilveer Singh**,  
Associate Professor,  
Department of Political  
Science, National University  
of Singapore (NUS)

Speakers: **The Darul Islam**  
**Charismatic Group as a  
Complex Adaptive System**  
by **Kumar Ramakrishna**,  
Head, Centre of Excellence  
for National Security (CENS),  
RSIS, NTU

**Complexity and Terrorism:  
Understanding Adaptive  
Adversaries** by **Mia  
Bloom**, Associate Professor,  
International Centre for the  
Study of Terrorism,  
Penn State University

Question and Answer Session

1215 – 1400hrs **Lunch Lecture: Countering Radical  
Ideology in a Complex  
National Security  
Environment:  
Reflections on  
the Religious  
Rehabilitation Group**

Venue: The Beaufort Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

Chairperson: **Bilveer Singh**,  
Associate Professor,  
Department of  
Political Science,  
National University of  
Singapore (NUS)

Speaker: **Mohamed Feisal bin  
Mohamed Hassan**,  
Religious Counsellor and  
Secretariat Member, Religious  
Rehabilitation Group (RRG)

Question and Answer Session

1400 – 1500hrs **Syndicate Discussions  
Syndicate 1**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

**Syndicate 2**  
Venue: Nutmeg I,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

**Syndicate 3**  
Venue: Nutmeg II,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1500 – 1530hrs **Coffee Break**  
Venue: Straits Verandah,  
The Sentosa Resort and Spa  
Attire: Smart casual (long-sleeved  
shirt without tie)

1530 – 1630hrs **Scenario Planning in the Singapore  
Public Service**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie)

Chairperson: **Adrian Kuah**,  
Research Fellow, RSIS,  
NTU

Speakers: **Tan Chee Seng**,  
Assistant Director,  
Strategic Policy Office,  
Public Service Division,  
Prime Minister's Office

Question and Answer Session

1630hrs **Free and Easy**

## THURSDAY, 12 APRIL 2012

0730 – 0900hrs **Breakfast**

Venue: The Terrace Restaurant,  
The Sentosa Resort and Spa

0900 – 1030hrs **Foreign Participants' Presentation  
on Homeland Security  
Management (HSM)**

*(Sweden / Switzerland / Thailand /  
Turkey / Vietnam)*

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie)

1030 – 1045hrs **Coffee Break**

Venue: Straits Verandah,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie)

1045 – 1215hrs **Session IV: Complexity and  
Cyber Security:  
Engineering Resilient  
Regimes**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie)

Chairperson: **Damien D. Cheong**,  
Post-Doctoral Fellow,  
Centre of Excellence for  
National Security (CENS),  
RSIS, NTU

Speakers: **Complexity and Cyber  
Security: Engineering  
Resilient Regimes** by **Nigel  
Phair**, Associate Professor,  
The Centre for Internet Safety,  
University of Canberra

**Complexity and Cyber  
Security: Engineering  
Resilient Regimes** by  
**Rex Hughes**, Co-Convenor,  
Cyber Defence Project,  
Wolfson College,  
University of Cambridge

Question and Answer Session

1215 – 1330hrs **Lunch**

Venue: Straits Verandah,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1330-1600hrs **Perspectivity Game**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

Facilitators: **Perspectivity Foundation**

1600 – 1630hrs **Coffee Break**

Venue: Straits Verandah,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1700hrs **Travel to The Arts House at  
the Old Parliament**

Venue: Meet at The Sentosa Resort &  
Spa Conference Lobby

Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1730 – 1830hrs **Distinguished Dinner Lecture  
Cocktail Reception**  
Venue: The Arts House at the Old  
Parliament (foyer outside  
The Chamber), Level 2  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1830 – 2000hrs **Lecture:  
Why the West Rules – For Now:  
Security Challenges in the  
21<sup>st</sup> Century**  
Venue: Chamber, The Arts House at  
the Old Parliament, Level 2  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women  
Chairperson: **Barry Desker**, Dean,  
RSIS, NTU

Speaker: **Ian Morris**, Professor,  
Department of Classics,  
Stanford University

Question and Answer Session

2000 – 2130hrs **Dinner**  
Venue: The Gallery & Blue Room,  
The Arts House at  
the Old Parliament, Level 2  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

## FRIDAY, 13 APRIL 2012

0730 – 0900hrs **Breakfast**  
Venue: The Terrace Restaurant,  
The Sentosa Resort and Spa

0900 – 1000hrs **Travel to Home Team Academy (HTA)**  
Venue: Meet at The Sentosa Resort &  
Spa Conference Lobby  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1000 – 1200hrs **Session VI: Resilient Post-Disaster  
Social and Economic  
Recovery Mechanisms**  
Venue: Home Team Academy (HTA)  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women  
Chairperson: **Yolanda Chin**,  
Research Fellow,  
Centre of Excellence for  
National Security (CENS),  
RSIS, NTU

Speakers: **An Assessment of  
the Impact of the Anders  
Breivik Incident on  
Multiculturalism in Norway  
and Europe** by  
**Magnus Ranstorp**,  
Research Director, Swedish  
National Defence College

**Resilient Post-Disaster  
Social and Economic  
Recovery Mechanisms** by  
**Yoshioka Tatsuya**,  
Co-Founder and Director,  
Peace Boat, Japan

Question and Answer Session

1200 – 1215hrs **Course Evaluation**  
Venue: Home Team Academy (HTA)  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1215 – 1315hrs **Lunch**  
Venue: Home Team Academy (HTA)  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1315 – 1515hrs **Tour of Home Team Academy (HTA)**  
Venue: Home Team Academy (HTA)  
Attire: Smart casual (long-sleeved  
shirt without tie) and  
equivalent attire for women

1515 – 1830hrs **Return to Sentosa from  
Home Team Academy  
Free and Easy**

1830 – 1900hrs **Certificate Presentation Ceremony  
and Closing Dinner  
Cocktail Reception**

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie)

1900 – 2100hrs **Certificate Presentation Ceremony  
and Closing Dinner**

Hosted by: **Benny Lim**,  
Permanent Secretary,  
National Security and  
Intelligence Co-ordination,  
Singapore

Venue: The Straits Ballroom,  
The Sentosa Resort and Spa

Attire: Smart casual (long-sleeved  
shirt without tie)

# ABOUT CENS

**The Centre of Excellence for National Security (CENS)** is a research unit of the S. Rajaratnam School of International Studies (RSIS) at Nanyang Technological University, Singapore. Established on 1 April 2006, CENS is devoted to rigorous policy-relevant analysis of a range of national security issues. The CENS team is multinational in composition, comprising both Singaporean and foreign analysts who are specialists in various aspects of national and homeland security affairs.

## WHY CENS?

In August 2004 the Strategic Framework for National Security outlined the key structures, security measures and capability development programmes that would help Singapore deal with transnational terrorism in the near and long term.

However, strategising national security policies requires greater research and understanding of the evolving security landscape. This is why CENS was established to increase the intellectual capital invested in strategising national security. To this end, CENS works closely with not just other RSIS research programmes, but also national security agencies such as the National Security Coordination Secretariat within the Prime Minister's Office.

## WHAT RESEARCH DOES CENS DO?

CENS aspires to be an international research leader in the multi-disciplinary study of the concept of resilience in all its aspects, and in the policy-relevant application of such research in order to promote security within and beyond Singapore. To this end, CENS conducts research in three main domains:

- *Radicalisation Studies*  
The multi-disciplinary study of the indicators and causes of violent radicalisation, the promotion of community immunity to extremist ideas and best practices in individual rehabilitation.

- *Social Resilience*  
The inter-disciplinary study of the various constitutive elements of social resilience such as multiculturalism, citizenship, immigration and class. The core focus of this programme is understanding how globalised, multicultural societies can withstand and overcome security crises such as diseases and terrorist strikes.
- *Homeland Defence*  
A broad domain researching key nodes of the national security ecosystem. Areas of particular interest include the study of strategic and crisis communication, cyber security and public attitudes to national security issues.

## HOW DOES CENS HELP INFLUENCE NATIONAL SECURITY POLICY?

Through policy-oriented analytical commentaries and other research output directed at the national security policy community in Singapore and beyond, CENS staff members promote greater awareness of emerging threats as well as global best practices in responding to those threats. In addition, CENS organises courses, seminars and workshops for local and foreign national security officials to facilitate networking and exposure to leading-edge thinking on the prevention of, and response to, national and homeland security threats.

## HOW DOES CENS HELP RAISE PUBLIC AWARENESS OF NATIONAL SECURITY ISSUES?

To educate the wider public, CENS staff members regularly author articles in a number of security and intelligence-related publications, as well as write op-ed analyses in leading newspapers. Radio and television interviews have allowed CENS staff to participate in and shape the public debate on critical issues such as radicalisation and counter-terrorism, multiculturalism and social resilience, as well as crisis and strategic communication.

## HOW DOES CENS KEEP ABREAST OF CUTTING EDGE NATIONAL SECURITY RESEARCH?

The lean organisational structure of CENS permits a constant and regular influx of Visiting Fellows of international calibre through the Distinguished CENS

Visitors Programme. This enables CENS to keep abreast of cutting edge global trends in national security research.

For more information about CENS, visit <http://www.rsis.edu.sg/cens>

## ABOUT RSIS

The **S. Rajaratnam School of International Studies (RSIS)** was officially inaugurated on 1 January 2007. Before that, it was known as the Institute of Defence and Strategic Studies (IDSS), which was established ten years earlier on 30 July 1996. Like its predecessor, RSIS was established as an autonomous entity within Nanyang Technological University (NTU). RSIS' aim is to be a leading research institution and professional graduate school in the Asia Pacific. To accomplish this mission, RSIS will:

- Provide a rigorous professional graduate education in international affairs with a strong practical and area emphasis
- Conduct policy-relevant research in national security, defence and strategic studies, international political economy, diplomacy and international relations
- Collaborate with like-minded schools of international affairs to form a global network of excellence

### GRADUATE EDUCATION IN INTERNATIONAL AFFAIRS

RSIS offers an exacting graduate education in international affairs, taught by an international faculty of leading thinkers and practitioners. The teaching programme consists of the Master of Science (M.Sc.) degrees in Strategic Studies, International Relations, International Political Economy and Asian Studies. Through partnerships with the University of Warwick and NTU's Nanyang Business School, RSIS also offers the

NTU-Warwick Double Masters Programme as well as The Nanyang MBA (International Studies). Teaching at RSIS is distinguished by its focus on the Asia Pacific region, the professional practice of international affairs and the cultivation of academic depth. Over 180 students, the majority from abroad, are enrolled with the School. A small and select Ph.D. programme caters to students whose interests match those of specific faculty members.

### RESEARCH

Research at RSIS is conducted by six constituent Institutes and Centres: the Institute of Defence and Strategic Studies (IDSS); the International Centre for Political Violence and Terrorism Research (ICPVTR); the Centre of Excellence for National Security (CENS); the Centre for Non-Traditional Security (NTS) Studies; the Temasek Foundation Centre for Trade & Negotiations (TFCTN) and the Centre of Multilateralism Studies (CMS). 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 endowed professorships that bring distinguished scholars and practitioners to teach and do 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.

For more information about RSIS, visit <http://www.rsis.edu.sg>

## NATIONAL SECURITY COORDINATION SECRETARIAT (NSCS)

**NSCS** was set up in the Prime Minister's Office in July 2004 to facilitate national security policy coordination from a Whole-of-Government perspective. NSCS reports to the Prime Minister through the Coordinating Minister for National Security (CMNS). The current CMNS is Deputy Prime Minister and Minister for Home Affairs Mr Teo Chee Hean.

NSCS is headed by Permanent Secretary (National Security and Intelligence Coordination). The current PS (NSIC) is Mr Benny Lim, who is concurrently Permanent Secretary (National Development) and Permanent Secretary (Prime Minister's Office).

NSCS is made up of two centres: the National Security Coordination Centre (NSCC) and the Joint Counter Terrorism Centre (JCTC).

The agency performs three vital roles in Singapore's national security: national security planning, policy coordination, and anticipation of strategic threats to Singapore. As a coordinating body, NSCS ensures that government agencies complement each other, and do not duplicate or perform competing tasks. It also organises and manages national security programmes, one example being the Asia-Pacific Programme for Senior National Security Officers, and funds experimental, research and start-up projects that contribute to our national security.

For more information about NSCS, visit <http://www.nscs.gov.sg>

S. Rajaratnam School of International Studies, Nanyang Technological University,  
Block S4, Level B4, Nanyang Avenue, Singapore 639798

TEL 65-6790-6982 | FAX 65-6793-2991 | EMAIL [wwwrsis@ntu.edu.sg](mailto:wwwrsis@ntu.edu.sg) | WEBSITE [www.rsis.edu.sg](http://www.rsis.edu.sg)