8th ASIA-PACIFIC PROGRAMME

FOR SENIOR NATIONAL SECURITY OFFICERS (APPSNO)

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The Challenge of Systemic Resilience for National Security

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

PONDER THE IMPROBABLE

NSCS
NATIONAL SECURITY COORDINATION SECRETARIAT

8th Asia-Pacific Programme for Senior National Security Officers (APPSNO)

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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) with the support of the National Security Coordination Secretariat (NSCS), part of Singapore's Prime Minister's Office, organised the 8th 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. APPSNO aims to 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. **Enhance exposure to global best practices in national security**
Participants will be 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 have been invited to speak on topics related to national risk assessment and management, strategic and crisis communication, cyber security, and countering violent extremism and radicalisation. The small-group interactive discussion format will enable participants to share ideas, anecdotes and experiences that will be of broad professional interest.

2. **Facilitate an international network of national security experts and practitioners**
APPSNO will provide the platform for participants to network with global national security experts as well as develop stronger relationships with their regional counterparts. Interaction will be facilitated through field visits, educational and study tours and social activities.

EXECUTIVE SUMMARY

WELCOME REMARKS

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

Barry Desker spoke about the need to develop better understanding of resilience at the systemic level as well as practical ways to apply this knowledge to various national security domains. He explained that it was necessary for the government to shift from a security-centric to a resilience-centric approach because challenges today were multi-dimensional and security disruptions could occur in various forms and magnitude. A resilience-centric approach would mean involving relevant stakeholders from different sectors of society in the conceptualisation and mapping of the varied components and processes making up a resilient system. Desker noted that the year's APPSNO agenda would include panel discussions on the challenges of forging systemic resilience when shaping strategic frameworks, when building resilient communities, and when developing integrated whole-of-government coordination.

OPENING ADDRESS

S Iswaran, Minister in Prime Minister's Office, Second Minister for Home Affairs and Trade and Industry, Singapore

In his Opening Address, S Iswaran emphasised that forging partnerships with different stakeholders in national security was crucial to better deal with and mitigate modern-day threats and risks. He explained that there had been increased focus on resilience, adaptation and inclusive partnerships over the more traditional stress on military capabilities and security in the hands of the government. He also spoke about the key components of resilience, namely, the infrastructure, the processes and the people. In order to build resilience, he said it was necessary to establish good public-private cooperation since much of the critical infrastructures of modern societies were in the hands of the private sector. Further, the forging of resilience depended on effective processes carried out by emergency services, law enforcement agencies and medical personnel. Above all, resilience must be harnessed from and by the people.

SESSION I - SYSTEMIC RESILIENCE: STRATEGIC FRAMEWORKS FOR NATIONAL SECURITY AND RESILIENCE

"Continuity of Government – From Crisis to Drama"
Campbell McCafferty, Director, Civil Contingencies Secretariat, Cabinet Office, United Kingdom

In his presentation, Campbell McCafferty explained that the notion of "continuity of government" initially referred to plans for evacuating the Prime Minister and his key aides in the event of a catastrophic nuclear attack and other high impact scenarios. However, the notion today had assumed a more comprehensive meaning. The continuity of government had become less security-centric but more focused on understanding challenges that could impinge upon the resilience of government services. McCafferty further spoke about the crucial role that the private sector could play in ensuring functional continuity. Particularly in light of the quest for more efficient public service delivery, the private sector had increasingly been incorporated to help facilitate the delivery of public services. While there were apparent benefits, such arrangements also meant that the continuity of government was also contingent on the private sector, inevitably bringing new challenges for the government.

"Systemic Resilience: The Way of the Future"
Steve Brazier, Director, Security and Risk Group, Department of Prime Minister and Cabinet, New Zealand

Steve Brazier spoke of two different lens through which to look at national security – the 'traditional' lens and the 'all hazards' one. The first was largely focused on actor-derived threats whereas the second took a more comprehensive approach to hazards, including meteorological, geological, biological and technological hazards. The latter approach also recognised that all risks were interconnected and could have spillover effects. Brazier argued that most governments had started following the comprehensive approach because it could more effectively deal with the multitude of threats in today's complex world. He further argued that such an approach had in fact given way to "resilience building" because the concept of resilience encouraged adaptive

capacity building which was necessary for managing threats. A society could not fully prepare for threats, but it could learn to adapt to disruptions. That said, he stressed that resilience and adaptive capacity could not wholly replace comprehensive security and capabilities; they were still needed to mitigate risks.

"Building Resilience in the Built Environment: Challenges and Insights from Civil Protection Practices in Switzerland"
Jennifer Giroux, Senior Researcher, Center for Security Studies, ETH Zurich, Switzerland

Jennifer Giroux presented some key challenges that the Swiss government faced in building resilience in urban spaces. She explained the concept of 'built environment' as a complex mix of interests and vulnerabilities emanating from different layers of infrastructure, people, and economic interests. Aggravating factors for the 'built environment' were population density, environmental change and economic interdependence; they further exacerbated vulnerabilities and made threats more difficult to deal with. Therefore, it had become necessary for the Swiss government to enhance resilience. Giroux cautioned, however, that defining or conceptualising resilience in a complex system was a difficult task because resilience could and did mean different things to different parts of the system. She concluded that the built environment should be treated as a socio-technical system that was hardly stable. Rather, it must be understood to be in the process of evolution.

"Systemic Resilience: Strategic Frameworks for National Security and Resilience"
Lim Kok Thai, Senior Director, National Security Coordination Centre, Prime Minister's Office, Singapore

In his presentation on Singapore's strategic frameworks for national security and resilience, Lim Kok Thai explained that inherent vulnerabilities, such as a very open economy, a lack of natural resources, and a dense and ethnically diverse population, have necessitated Singapore to make the extra effort to deal with threats and hazards. The nature of risks the country faced was constantly evolving and it no longer had to deal with traditional threats that were singular, distinct and directed but now faced challenges that were multidimensional, interdependent and diffused, thereby requiring whole-of-government and whole-of-society responses. There was accordingly a need for constant upgrading and learning as well as improving coordination across multiple agencies. To facilitate such coordination, the National Security Coordination Secretariat was established in 2004. Lim also emphasised that resilient nations could only be built if responses to crises were versatile and cut across all government agencies and also between the government and other segments of society.

SESSION II - SYSTEMIC RESILIENCE: A COMMUNITY PERSPECTIVE

"Systemic Resilience: A Community Perspective"
Carmen Sirianni, Morris Hillquit Professor in Labor and Social Thought and Professor of Sociology and Policy, Brandeis University, USA

Carmen Sirianni explained that community engagement could take many forms and could in fact be enabled by local governments and other agencies in a systemic fashion. Drawing from a number of cases and characteristics from the US, particularly communities in Seattle, Sirianni compared them to emerging models in some Asia-Pacific and European cities. In doing so, he highlighted the need for more creative ways of looking at communities and what they could offer to build resilience. He noted that to engage communities to bring about long-term change, they must be seen as having assets that could be mobilised. Governments could forge community resilience through inclusive and multi-stakeholder participation, data and visioning toolboxes, reciprocal accountability mechanisms and funding, as well as through face-to-face trust-building processes.

"Systemic Community Resilience: From Recovery to Readiness"
Douglas Paton, Personal Chair, School of Psychology, University of Tasmania, Australia

Douglas Paton defined resilience based on the definition provided by the United Nations Office for Disaster Risk Reduction, that is, the ability for communities to respond and recover from hazards. Paton argued that the measures of resilience could lie in how well communities adapt by developing and applying competencies and relationships in situ as well as by using knowledge, skills and relationships developed before a crisis. He noted, however, that resilience comprised of both individual

and collective competencies, influencing the overall levels of resilience as well as capacities for ad hoc reactions. Defining readiness as the ability to cope and adapt to specific hazard impacts as well as response and recovery demands over time, Paton highlighted several readiness strategies in order to increase resilience. Among them was mobilising community resource to increase the likelihood of communities being able to respond in planned and functional ways to complex hazard effects.

"Community Resilience: A Systems Perspective"
John Plodinec, Associate Director, Resilience Technologies – Community and Regional Resilience Institute, Meridian Institute, USA

John Plodinec argued that since all disasters were local, the response to such disasters, the restoration of services, recovery capacity and redevelopment hinged on the local community. The evolution of a community after any disruptive change would be a measure of its resilience. A resilient community was one that would rapidly recover to at least the same state of functionality as before a disruption. More resilient communities might actually find opportunities in disruptions and become stronger. Plodinec further argued that a community could be understood as a system of systems – an eco-system – made up of individuals and families, private businesses and social institutions, the government as well as both the natural and the built environments. These elements were bound together as much by geography as by social capital (i.e., leadership, culture and relationships).

4TH APPSNO ALUMNI DINNER LECTURE

"Systemic Resilience: The Whole-of-Government Puzzle"
Peter Ho, Chairman, URA Board; Senior Advisor, Centre for Strategic Futures; Senior Fellow, Civil Service College, Singapore

Peter Ho discussed the development of Singapore's whole-of-government approach to forging systemic resilience. He pointed out that the best way to cope with strategic shocks was to create a resilient state. Singapore faced a wide spectrum of threats, from terrorist groups such as Jemaah Islamiyah to the outbreak of SARS, underscoring the increasing complexity of national security challenges. Characterised as 'wicked problems', such challenges needed to be met with responses from all stakeholders,

with the government in the lead. A networked approach to resilience would not just create a necessary convergence of efforts but would also counteract cognitive biases and groupthink. Moreover, a whole-of-government approach would be better poised to positively shape and not merely predict the future. Breaking down institutional silos and countering tendencies of agencies to only share information on a need-to-know basis through net assessments would allow the government to better forecast possible 'black swans'. This would in turn provide for opportunities to undertake more realistic exercises to stress-test current levels of resilience.

SESSION III - SYSTEMIC RESILIENCE: THE TECHNOLOGICAL PUZZLE

"Crisis Mapping and Crowdsourcing for Disaster Response and Systemic Resilience"
Jen Ziemke, Associate Professor, Department of Political Science, John Carroll University, USA

Jen Ziemke presented an overview of ways to leverage the power of social media and real-time data to better understand and visualise crises. She argued that through the engagement of new networks, and visualising and analysing vast volumes of crowd-sourced data on crisis maps, crisis response could be enhanced and resilience forged. She regarded rapid technological advances as a double-edged sword, providing both opportunities and threats to societies, i.e., cyber infrastructure was capable of efficiently integrating societies but yet also rendered them vulnerable to cyber-attacks. The government, academia and the private sector therefore needed to find fresh and innovative ways to collaborate to ensure that society possessed the technological adaptive capacity to promote urban safety and security in the face of unexpected events. She concluded that the rewards of engaging often outweighed the risks and proposed best practices for helping societies and states respond to different crises and events.

"Systemic Resilience: The Technological Puzzle"
Lars Nicander, Director, Center for Asymmetric Threat Studies, Swedish National Defence College, Sweden

Lars Nicander introduced the audience to the work of the Center for Asymmetric Threat Studies (CATS), explaining that the outfit studied the causes of asymmetric threats

that societies faced. He argued that the positive effects of information and communications technology and the Internet also led to severe risks and vulnerabilities to the extant critical information infrastructure. This in turn threatened the stability of economies and societies. He further elaborated on the concepts of cyber-terrorism and cyber-criminality and suggested ways in which policymakers could counter such challenges through various national and international cyber security efforts.

LUNCH LECTURE

"Systemic Resilience: The Radicalisation Puzzle – A Historical Lesson from Malaya"
Kumar Ramakrishna, Head, Centre of Excellence for National Security (CENS), S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University, Singapore

Kumar Ramakrishna presented on the evolution of policing and law enforcement practices during the counterinsurgency campaign against the Communist Party of Malaya (CPM) in a period known as the Malayan Emergency (1948-60). He elaborated on the central concept of being "propaganda-minded" and examined how the origins and meaning of the concept had changed over time. He argued that its gradual adoption by the Malayan police and all government departments contributed to the eventual success against the communists. In conclusion, he argued that there were lessons to be drawn from the past that would prove valuable to current efforts to counter radicalisation and religious extremism.

SESSION IV - SYSTEMIC RESILIENCE: PRACTICAL CASE STUDIES

"Case-Based Strategies for Building Crisis Resilience"
Eric Stern, Professor of Political Science/Crisis Management, Swedish National Defence College, Sweden

Eric Stern emphasised the importance of studying and exchanging information on crisis cases. He listed five key takeaways of such an approach: (i) crises could reveal unexpected threats and vulnerabilities, even when they hit other organisations or countries; (ii) extant assumptions and preparedness could be tested, e.g., a long held assumption that people tended to panic in

crises was proven inaccurate when analysts found out that people would only begin to panic when they began feeling that they were not given true information and/or denied guidelines to help themselves; (iii) crises could help identify obsolete and innovative practices; (iv) areas needing reform and capacity building could be further identified; and (v) crises could be a valuable resource for education, training and exercise.

"Resilience Lessons Learned from Hurricane Sandy"
Steve Flynn, Professor of Political Science, and Founding Director, Center for Resilience Studies at Northeastern University, Boston, USA

Steve Flynn provided some detailed information on Hurricane Sandy and pointed out the shortcomings of the crisis planners in dealing with the adverse effects of the storm. He provided three instances to highlight the importance of preparedness and concluded by suggesting that resilience required elevating the risk literacy amongst public officials and the general public. Furthermore, he said resilience involved both design in advance, i.e., "resilience engineering", and an operational capacity to manage and recover with a focus on ensuring the continuity of essential function. Finally, resilience required a deeper understanding of interdependencies and the cascading effects that a major disruption could generate.

"Systemic Resilience: Case Studies"
Majeed Khader, Director and Senior Consultant Psychologist, Home Team Behavioural Sciences Centre, Home Team Academy, Singapore

In his presentation, Majeed Khader discussed how resilience could be variously conceptualised and shared his thoughts on the nature and characteristics of crises. Based on systems theory, he further examined different models of systemic resilience and argued that resilient systems had five key characteristics: (i) robustness, which meant that they possessed adaptive mechanisms; (ii) redundancy, which meant that backups had to be in place and solutions to deal with adverse situations were diverse; (iii) resourcefulness, which meant that there was capacity for self-organisation, creativity and innovation; (iv) responsiveness, which meant that effective communication and participation could take place; and (v) recovery, which meant that horizon scanning had to be carried out and regulatory feedback provided.

DISTINGUISHED DINNER LECTURE

"Systemic Resilience: The Master Narrative Puzzle"

Eugene Tan, Associate Professor of Law, Singapore Management University; Nominated Member of Parliament, Singapore

Eugene Tan presented his views on the role of master narratives in building societal resilience. Forging societal resilience had increasingly become an important public policy objective. Narratives, as a means for a society to interpret and commemorate shared values and experiences, accordingly played an important part in such endeavours. However, challenges abound should such narratives not adequately represent present day realities and were focused on vulnerability-led policymaking. Further, in attempting to promote a whole-of-society approach towards resilience, there was a need to ensure the complementary nature of resilience and master narratives. A number of examples from efforts related to the evolution of the Singapore Master Narrative highlighted the need for narratives to be flexible in recognising the existence of multiple social identities while at the same time encouraging consensus building as well as a common civic identity. In conclusion, he said to be effective, the concept of resilience had to be aligned with existing master narratives in order to enable a society to adapt to adverse changes without producing a sense of heightened vulnerability.

SESSION V - SYSTEMIC RESILIENCE: A FUTURE LENS

"Foresight and Public Policy: The Singapore Experience"

Kwa Chin Lum, Deputy Director, Strategic Policy Office, Public Service Division, Singapore

Kwa Chin Lum discussed Singapore's rationale for and approach to foresight, the related emerging strategic issues and its application to public policy. Drawing on the Singapore experience, Kwa explained that predictions had helped manage uncertainties and were therefore indispensable in building a resilient system. He further shared how Singapore's approach to foresight had evolved from one that was conducted solely by the Ministry of Defence to a holistic one conducted by all Ministries in an integrated manner. Emerging strategic issues for Singapore included external challenges such as shifting global balance of power and internal ones such as increasing diversity. The process by which predictions were produced and applied to policies consisted of three steps, namely: (i) researching issues; (ii) communicating ideas; and (iii) generating policies. In order to avoid groupthink and lack of imagination, the government would frequently bring in the views of academics and civil society.

"Future Focus: Disaster Terrorism"

Steve Glassey, Associate Director, Centre for Risk, Resilience and Renewal, University of Canterbury, New Zealand

Steve Glassey spoke about the concept of disaster terrorism (DTER) and how to mitigate it. He illustrated a hypothetical scenario in which terrorists, instead of using traditional weapons of mass destruction, would capitalise on natural disasters (e.g., bushfires to perpetrate a terror attack). Glassey defined DTER as a type of terrorism whereby terrorists used natural disasters to amplify the effects of their 'traditional' terror instrument, causing a force multiplier impact on public safety. Given that DTER merged two categories of threat that would traditionally fall under two different domains – natural disaster being handled by emergency services whilst terrorism by the national security one – the disconnect between the two systems would render states unprepared for such a novel yet plausible threat. In conclusion, Glassey suggested that to prevent and mitigate DTER, the government should focus on improving dialogue and interoperability between existing emergency and national security systems rather than establishing an entirely new DTER department.

"Security, Risk and Quantum Events"

James Der Derian, Director, Centre for International Security Studies, University of Sydney, Australia

James Der Derian presented four scenarios highlighting the vulnerability of networked critical infrastructures and lessons learned for critical infrastructure resilience. The unifying theme of the four scenarios – namely (i) a global crisis prompted by the failure of local electrical power grids in the US; (ii) a montage of cascading threats gleaned from five popular science fiction books; (iii) a worst-case scenario based on the "Information Bomb"; and (iv) the dangers of quantum computer – is that the densely networked nature of critical infrastructure made it increasingly difficult not only to discern the cause and effects of an attack but also to contain it. In light

of cascading critical infrastructure failures, sovereign states would no longer be able to fulfil their traditional role as the sole security provider. As such, Der Derian argued that the task of preventing and mitigating critical infrastructure failures increasingly hinged on local, regional and international communities.

DISTINGUISHED LUNCH LECTURE

"Moving from a "Security" to a "Resilience" Mindset: A Necessary Shift for Practitioners?"
Steve Flynn, Professor of Political Science and Founding Director of the Center for Resilience Studies at Northeastern University, Boston, USA

Steve Flynn's presentation revolved around the concept of resilience, which had become a key security imperative for the US. Flynn noted that the focus on resilience marked a fundamental shift in thinking about national security from a threat-based, linear way of understanding risks to an emphasis on core values through the reduction of vulnerabilities and consequences. In the long run, focusing on resilience would prove to be a more sustainable means of dealing with the complexity of many current threats faced. Building resilience was a bottom-up, open and inclusive process, necessitating an all-of-society approach. Success would mean that societies were better able to cope with major shocks. At the same time, resilience could serve as a deterrent factor against the threat of asymmetric terrorist attacks.

WELCOME REMARKS

Barry Desker

Ambassador Barry Desker welcomed all guests and participants to the eighth instalment of the Asia-Pacific Programme for Senior National Security Officers (APPSNO), the platform where senior national security practitioners, policymakers and academics from around the world gathered for a rigorous exchange of ideas and networking.

In line with the APPSNO theme for the year, "The Challenge of Systemic Resilience for National Security", Desker remarked that it was necessary to examine what it would take to build resilience at the systemic level and applying it practically across various national security domains, particularly in light of increasingly complex security challenges. He argued that at the core of systemic resilience was the adaptive capacity of the social system and its related components to respond optimally to

emerging challenges that were multi-dimensional and dynamic. This was crucial because security disruptions often came in different forms and magnitude, from terrorist attacks on the streets to attacks in cyberspace. Such disruptions could not be expected to be fully avoidable or eradicated; they needed to be managed and contained by relevant stakeholders from all sectors of society. The interdependent components of the national ecosystem needed to be able to cohere effectively in the event of any crisis. Societies therefore needed to shift from a security-centric mindset to a resilience-centric one. A resilient nation was one that would not break under pressure, but could bear the brunt of sudden disruptions, recover and bounce back.

Accordingly, a central objective of APPSNO was to understand and map out the various components making up resilience, the connections between them, and the processes involved in shaping and sustaining resilient entities. Drawing on varied experiences and expertise from across the globe, Desker said that there would be discussions addressing the challenges of forging systemic resilience for national security when shaping strategic frameworks; when building resilient communities; when developing integrated whole-of-government coordination and technological responses to security predicaments; and when considering practical applications and future implications of conceptualising resilience.

OPENING ADDRESS

Minister S Iswaran

Minister S Iswaran spoke about the evolving risk landscape that had led to an increased focus on forging resilience and developing inclusive partnerships over building military capabilities and thinking about security as a government responsibility.

He examined how resilience could be achieved through cooperative prevention and preparation, focusing on three non-traditional threats which could develop quickly, emanate from different sources and directions, and cause multiple failures: (i) terrorism, (ii) cyber-attacks, and (iii) natural calamities and pandemics. Terrorist operations, as evident from the case of the 2012 underwear bomb plot, could be successfully prevented when there was close cooperation between security and intelligence agencies across continents. In similar vein, resilience in the face of cyber-attacks, which could be carried out swiftly and

anonymously, was largely contingent on the architects and the users of the complex and interconnected cyber chain. Likewise, the capacity to withstand and minimise possible damages from impending natural hazards and pandemics needed preparations on the part of governments and all relevant security stakeholders. To a large extent, international cooperation was needed in such cases. The Programme for Monitoring Emerging Diseases (ProMED) was highlighted as an example of successful international cooperation to enhance preparedness and resilience as it helped provide accessible information and guides on timely implementation of precautionary measures.

Iswaran also identified the key components of resilience, namely, infrastructure, processes and people. He explained that the ability to mitigate the impact of any risk events depended on whether the infrastructures were built, designed and planned with evolving risks in mind. Further, with much of such infrastructures owned by stakeholders in the private sector, public-private cooperation was thus indispensable in the creation of resilience. Effective and robust processes carried out by those in law enforcement, emergency response and the medical fields must also complement these resilient infrastructures. Finally, at the most fundamental level, people were central to building resilience within any community. There was accordingly a need to develop awareness programmes to help educate and instill a sense of shared responsibility amongst all.

SYSTEMIC RESILIENCE: STRATEGIC FRAMEWORKS FOR NATIONAL SECURITY AND RESILIENCE

Continuity of Government – From Crisis to Drama
Campbell McCafferty, Director, Civil Contingencies Secretariat, Cabinet Office, United Kingdom

Campbell McCafferty

Campbell McCafferty spoke about how the understanding of "continuity of government" in the United Kingdom had evolved over time. The term was conceived in the Cold War context and was traditionally about constructing plans for evacuating the Prime Minister and his key ministers and aides in the event of a catastrophic nuclear attack or other high impact scenarios. Security was thus regarded as a highly centralised, top-down process.

In the last decade, however, such a security-centric approach had given way to a more comprehensive one focused on possible scenarios that could impact the resilience of government services. The current risk assessment strategy had accordingly been expanded to assess all the different types of risks and threats that could impact critical functions and infrastructure, including natural hazards and pandemics. On one hand, such an approach broadened the risk scenarios for the UK and helped it to prepare for a variety of crisis possibilities. On the other hand, broadened risks meant that the responsibilities of delivering government services needed to become more diverse. While the central government was expected to be in charge of strategic planning and crisis management, greater involvement of local agencies and new departments was also required, which meant fresh challenges for coordination.

Particularly since the 2008 financial crisis, the role of the private sector in ensuring continuity of the government had further expanded. It was the drive for efficiency in the delivery of public service that had resulted in more private service partners becoming involved in the process. Not only did private companies look after the critical infrastructures they owned, but they were also the interface between the government and the public because they helped deliver services to the latter on behalf of the former. Efficiency of public services had indeed seen improvements, but more risks accompanied the change. McCafferty illustrated the point by highlighting the problems that the UK government had with the security contractor engaged for the 2012 Olympics in London. He concluded that continuity of government could be impacted by a multitude of risks affecting the delivery of public services. On top of having good partners in the private sector, having robust business continuity plans were just as important.

Systemic Resilience: The Way of the Future
Steve Brazier, Director, Security and Risk Group, Department of Prime Minister and Cabinet, New Zealand

Steve Brazier

Steve Brazier defined resilience as the ability of an entity to absorb and adapt to sudden change without losing its function or character. A resilient society was one that was dynamic and adaptive; could cope with fast and unexpected changes; absorb shocks but remain unchanged; and able to self-organise. The US after the 9/11 attacks was held up as an example of a system that

was resilient for absorbing a major shock and adjusting to a new reality. The USSR after glasnost, on the other hand, was an example of a non-resilient system because the extant socio-political order disintegrated.

Brazier pointed out two broad interpretations of national security, namely, the 'traditional' and the 'all hazards'. The traditional view focused predominantly on actor-derived threats to the state, whereas the 'all hazards' perspective took a comprehensive approach that included meteorological, geological, biological, and technological hazards. The latter approach also recognised the interconnectedness between risks and their possible cascading impact, i.e., a natural disaster in one location could lead to economic collapse in another, which could lead to further civil or military conflicts.

In light of diverse threats to national security, the comprehensive approach to hazards was gaining importance and it was already implemented in countries such as Great Britain, Germany and New Zealand. Central planning though, increasingly incorporated an understanding of resilience at its core. Building resilience through developing adaptive capacity across society became increasingly necessary because of the complexity of threats societies faced today. As societies could not fully confront all kinds of risks, developing resilience would enable them to cope better with disruptions and bounce back quicker. Having an adaptive capacity meant societies could also respond quicker to the 'unknowns' and move faster towards recovery.

Nevertheless, Brazier argued that the notions of resilience and adaptive capacity were not going to replace the notion of comprehensive security. The comprehensive capabilities societies had developed thus far continued to serve a purpose and could help mitigate the majority of the known risks as well as many of the unknowns. That said, societies could not rest solely on these comprehensive measures. They still needed to encourage the development of resilience and adaptive capacity at both the state and the societal levels. As the relationship between the state and its citizenry continued to evolve over time, they would both take appropriate ownership over their respective spheres of responsibilities.

Building Resilience in the Built Environment: Challenges and Insights from Civil Protection Practices in Switzerland
Jennifer Giroux, Senior Researcher, Center for Security Studies, ETH Zurich, Switzerland

Jennifer Giroux

Jennifer Giroux presented on the Swiss approach to critical infrastructure protection (CIP), private-public partnerships as well as new trends in civil protection and emerging strategic issues in the built environment. The concept of the 'built environment' was explained as a complex mix of interests and vulnerabilities originating from the different layers of infrastructure, people and economic interests. Population density, environmental change and economic interdependence were among the factors that could exacerbate vulnerabilities and make threats more difficult to deal with. The very interconnectedness of the different systems within the built environment posed further challenges that the Swiss government increasingly had to confront on top of its endeavours to build resilience for its CIP.

More in-depth research into the interconnections between and among the different systems making up the built environment had led to a better understanding of the concept of resilience. A key takeaway was that resilience meant different things to different people as people responded differently in times of crises and had different levels of expectations. Even developing a basic definition of resilience was complex considering responses to disturbances were essentially dynamic processes. Resilience could be regarded either in the sense of bouncing back and returning to the previous state, or it could mean adaptation and change.

Giroux concluded with several policy recommendations. Firstly, governments needed to treat the built environment as a socio-technical system that was not stable. Rather, the system should be regarded as one that was in a

constant state of evolution. Secondly, it was important to deconstruct community complexity and understand the different interconnections and relationships that different parts of the community were creating vis-à-vis the built environment. Thirdly, creating opportunities for different voices to contribute to the decision-making process was necessary. Finally, it was essential to understand critical infrastructure resilience not only in terms of its technical response behaviour, but that it might also produce emergent responses within the social system.

Systemic Resilience: Strategic Frameworks for National Security and Resilience
Lim Kok Thai, Senior Director, National Security Coordination Centre, Prime Minister's Office, Singapore

Lim Kok Thai

Lim Kok Thai provided a practitioner's view of how Singapore dealt with national security and resilience issues. He gave a brief outline of Singapore's socio-economic and demographic backgrounds and highlighted related vulnerabilities of the country.

Lim turned his attention to some of the major security threats that Singapore had faced in the past two decades. The first was the discovery of a Jemaah Islamiyah (JI) network in Singapore after the 9/11 attacks. The presence of JI in the country underscored how Singapore was not safe from the threat of global terrorism. In fact, as recently as March 2012, a radicalised individual – the fifth thus far – was detained when he attempted to join the insurgency in southern Thailand. Beyond terrorism, pandemics had also been a concern. In 2003 Singapore had to deal with the SARS crisis, and in 2009 the H1N1 influenza outbreak. A key takeaway from such episodes for crisis management was the importance of versatility and flexibility in responding to the crisis because the usual systems and structures in place were neither sufficient nor adequate. Despite measures to keep the H1N1 virus

out of Singapore based on experience of having had dealt with SARS, over 415,000 flu cases were registered within eight months.

These examples showed that the nature of the risks Singapore faced was constantly evolving. Threats were multidimensional and interdependent, and more robust interagency networks were needed, particularly to coordinate cross-agency activities and resources. For that purpose, the National Security Coordination Secretariat (NSCS) was established in 2004. The NSCS had since conducted numerous activities and exercises to map out the risk landscape to help in prioritising efforts to best mitigate risks.

In conclusion, Lim listed five key lessons learnt. Firstly, it was necessary to assess risks and prioritise efforts to manage such risks successfully. Secondly, as the world became more interconnected, there was a need to address the vulnerabilities that arose from the interconnectedness. Thirdly, as the operating environment also became more complex, anticipatory capabilities must be developed to scan the horizon for future threats. Fourthly, a whole-of-society approach must be adopted as people formed the core of resilience and in light of the fact that governments could not deal with all the risks and threats alone. Finally, the proper coordination of efforts across agencies was necessary to multiply ideas and prevent a duplication of efforts.

Discussion

A participant was interested to know how to best facilitate effective collaboration between command-and-control structures (e.g., military organisations) and the generally self-organising community during times of crisis. The standing opinion was that spontaneous bottom-up responses were crucial to build resilience in a country. In response, it was argued that command-and-control structures remained essential, as was demonstrated during Hurricane Sandy when state capacity became central in informing and preparing citizens for impending crisis and, later, in stabilising the situation. That said, it was also pointed out that the state needed to allow space for the community to organise at the local level because the community could come up with surprisingly inventive ways to mitigate the impact of crises.

SYSTEMIC RESILIENCE: A COMMUNITY PERSPECTIVE

Systemic Resilience: A Community Perspective
Carmen Sirianni, Morris Hillquit Professor in Labor and Social Thought and Professor of Sociology and Policy, Brandeis University, USA

Carmen Sirianni

Carmen Sirianni noted that community engagement could take many forms and it could be further enabled by local governments and other agencies in a systematic manner to enhance problem-solving capacities for complex issues such as planning, sustainability and climate resilience. That said, while communities offered opportunities to build trust and social capital, the key challenges lay in merging the long-term assets of any community with professional knowledge to overcome issues such as climate change, city planning and adaptation. Firstly, a too-narrow definition of what constituted a community by those in the professional circles limited the usefulness that could come from the community. Sirianni argued that to engage in long-term change, the professionals must regard local communities as having valuable assets that could be mobilised to meet new challenges. Secondly, there remained ignorance of and resistance to knowledge and interactions of the local communities towards the professionals. Finally, local communities might also be parochial and competitive,

usually at the expense of more vulnerable members of the community. Indeed, disagreements and differences within communities rendered interactions and problem-solving with local governments considerably more difficult.
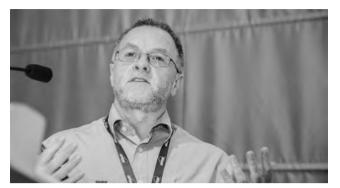
For governments to empower communities, many factors must first be accounted for, including funding, contract and representation within local governments, as well as staff support. Community resilience could be enabled through organisational templates for inclusive and multi-stakeholder participation, data and visioning toolboxes, reciprocal accountability mechanisms and funding, as well as through indispensable face-to-face trust building processes. Accountability was key in this process and must be reciprocal between local communities and local governments.

Sirianni examined a number of illustrative cases in the United States, particularly focused on communities in Seattle, and compared them to emerging models in some Asia-Pacific and European cities. In one neighbourhood-planning project called 'Sustainable Seattle', one local government representative was assigned to a district and the representative's role was to be a 'double agent'. They were to interact with the local communities and listen to their concerns, and then represent the district at the local government level. Every public agent was further required to develop a tool that citizens could use to access local data related to their respective districts, ultimately developing a system of accountability between public officials and local citizens.

Sirianni concluded by underscoring the importance of trust as well as reciprocal and democratic accountability between neighbourhood groups and citizen groups to create resilient and robust communities.

Systemic Community Resilience: From Recovery to Readiness

Douglas Paton, Personal Chair, School of Psychology, University of Tasmania, Australia

Douglas Paton

Based on the definition provided by the United Nations Office for Disaster Risk Reduction, **Douglas Paton** defined resilience as the ability of communities to respond to and recover from hazards. It was recognised that there were no homogenous ways of understanding resilience. Resilience could, in fact, be further broken down into a community's ability to resist, absorb, accommodate and recover from hazards. Resilience could also be measured by examining how well communities adapted by developing and applying competencies and relationships in situ as well as by using knowledge, skills and relationships that were developed before a crisis.

Given that resilience was context dependent, developing resilience programmes was difficult. Paton argued that communities must build on collective experiences of disasters in order to identify what could contribute to resilience during large-scale disasters. Drawing lessons from the 2011 earthquake in Christchurch, he noted some key challenges for the community at the time. The community was required to continually respond and adapt through the length of the natural disaster, and that included: dealing with structural issues such as loss of housing; developing survival and self-reliance skills in times of deprivation; ensuring psychological readiness, especially in light of repeated earthquake aftershocks; putting in place community and capacity planning initiatives such as coordinating relief efforts with neighbours; maintaining employment and livelihood; and finally, forging community-agency relationships. Paton identified readiness as the ability to cope and adapt to specific hazard impacts as well as the response-and-recovery demands over time. Resilience, on the other

hand, comprised individual capabilities and collective competencies from cumulative experiences, which, in turn, influenced levels of resilience and capacities for ad hoc reactions.

For any given future event, it would be impossible to predict the permutations of location, timing, intensity, duration and characteristics of the built and social contexts that people inhabited. In order to integrate lessons learned from Christchurch into resilience programmes, one must first analyse the adaptive capacities of communities and their ability to respond to uncertainty. In developing adaptive capacities that could be generalised and respond to the unpredictable, the gap between what people could expect to experience and what they would actually experience could be narrowed.

Paton concluded that systemic community resilience required an assessment of existing social networks and social capital as well as of existing resources that would allow people to respond effectively to a range of hazardous events. Also needed was a capacity for community problem-solving to ensure collective efficacy alongside efforts to empower and sustain community trust. Finally, agency and organisational development were important to prevent unsystematic and redundant responses to crises.

Community Resilience: A Systems Perspective

John Plodinec, Associate Director, Resilience Technologies – Community and Regional Resilience Institute, Meridian Institute, USA

John Plodinec

John Plodinec noted that it had become a truism that all disasters were local. Accordingly, the local community was the thread binding together the response, restoration of services, recovery of capacity and redevelopment after

a disaster. When a community could positively adapt to change, it was thus resilient.

A community was described as an ecosystem that comprised individual families, economic institutions, community institutions, the built environment as well as the natural environment. All of those were bound together by social capital as much as by geography and self-interest. Communities were argued to be of vital importance for two key reasons: (i) communities were where individuals, families, businesses and organisations alike could aggregate their voices and organise for more resources from those above, and (ii) communities could act as conduits for resources and reciprocal information.

Plodinec argued that disasters had directions, and the point of attack would generally mostly affect one section of a community. For example, a recession would mostly impact individual families and economic institutions, hurricanes would mostly affect the built and the natural environments, and pandemics would mostly impact individual families and community institutions. If one could understand how people from a particular section of the community would react and behave as a result of structural change, then one could begin predicting the cascading consequences of changes affecting one sector of a community.

The vulnerabilities of a particular community during crises depended on its preexisting social capital and strength. Preparedness of the community depended on its social capital, which included the resources it had at its disposal as well as its plans, connections, culture and leadership. Leadership was considered the most important element in forging community resilience. Plodinec noted that communities with good leadership might even find

opportunities in disruption and develop into more resilient communities as a result. The evolution of a community after any disruptive change was, in fact, a measure of its resilience. Different parts of a community had its own pace of recovery. It was accordingly important to celebrate small achievements in the aftermath of a crisis to strengthen the entire community. Every community was unique. Understanding how communities functioned, how the people were connected, and how their information flows worked, would help build resilience faster.

Plodinec concluded that we could only build community resilience by accepting that disasters would continue to happen and by cultivating humility in the face of change.

Discussion

The role of culture in building resilience was discussed. A participant wondered whether there could be differences between how a community with an individualistic culture responded to a crisis and one that had a collectivist culture. One of the speakers replied that while community-based groups might be established during crises in communities with an individualistic culture, such groups would often fall away after the crisis passed. The lack of continuity of engagement meant that such communities could be more significantly disrupted in times of crises than communities with collectivistic cultures.

Another issue debated pertained to risk-based resource allocation and whether a community should place greater priority on the likelihood of disruptions or the magnitude of impact. Building capabilities at the community level was regarded of great importance in order to organise capacities to respond.

Systemic Resilience: The Whole-of-Government Puzzle

Peter Ho

Peter Ho shared his personal reflections on key lessons learnt from a long and distinguished career in the Singapore Administrative Service. Drawing from his experience as former Head of the Civil Service as well as concurrent appointments as Permanent Secretary (Foreign Affairs), Permanent Secretary (National Security and Intelligence Coordination), and Permanent Secretary (Special Duties), he discussed the development of Singapore's whole-of-government approach to forging systemic resilience.

Throughout the lecture, Ho emphasised that the best way to cope with strategic shocks was to create a resilient state. Singapore, like other states facing national security challenges, needed to choose between a centralised and a matrix approach that could effectively optimise available government resources. Such an approach should also account for a wide spectrum of potential threats. Singapore faced threats that ranged from terrorist groups such as Jemaah Islamiyah to pandemics like SARS.

Common to these threat vectors were their inherent complexity, which could be characterised as 'wicked problems'. Such problems needed a well-coordinated response from all relevant stakeholders, with the government in the lead. Further, these complex challenges could manifest without warning and would take societies by surprise and often with major, even catastrophic, effects.

Ho argued that a matrix or a networked approach to resilience would not only create the necessary convergence of efforts in responding to such events. Networked approaches would prove beneficial by also counteracting cognitive biases and groupthink within institutions, essentially dysfunctions that could hinder effective solutions. A whole-of-government approach to resilience would also allow more proactive measures, and a resilient government would be better placed to positively shape and not merely predict the future. Efforts to bridge institutional silos and to counter tendencies among agencies to only share information on a need-to-know basis through net assessment would also allow a government better ability to forecast 'black swans'. Improved fusion of information could also allow government stakeholders to develop realistic scenarios that could be stress-tested through exercises. In light of recent developments such as terrorist attacks, an increasingly cybered society, and tragedies like the disappearance of MH370, Ho stressed that challenges to national security would continue to emerge and evolve.

To conclude, Ho illustrated Singapore's whole-of-government approach by showcasing the creation of the National Security Coordination Secretariat in the Prime Minister's Office. Having a small yet active institutional footprint was deemed sustainable. The Singapore approach to forging resilience at the systemic level was similar to best practices gleaned from countries as diverse as Australia, France and the United Kingdom.

Discussion

There was a discussion on ways to build resilience in society to meet current challenges. The prevailing opinion was that the notion and practice of resilience should first take root in the government among its various agencies. Getting the public involved in response to wicked problems would subsequently follow. That said, the government must continue to find ways to sense the ground through initiatives such as "Our Singapore Conversation".

There were further discussions on Big Data and its technological implications for a whole-of-government

approach to forging systemic resilience. The upheavals in the aftermath of the 'Arab Spring' were brought up as a point to underscore the limited ability of Big Data analysis to predict major crises. It was argued that analytics should be better conceptualised as a complementary tool to help in planning. The current ability to confidently predict future events based on analytics remained limited.

Another theme of discussion that emerged centered on collaborative leadership. It was stressed that while the whole-of-government approach called for the convergence of effort of all relevant stakeholders whether in government or civil society, having robust command-and-control within the government remained indispensable. On the issue of how government agencies could break out of their tendencies to only share information on a need-to-know basis, it was acknowledged that the biggest challenge was in findings ways to provide incentives to counter it. Such information-sharing had become even more difficult in light of information breach controversies surrounding Edward Snowden and Wikileaks.

SYSTEMIC RESILIENCE: THE TECHNOLOGICAL PUZZLE

Crisis Mapping and Crowdsourcing for Disaster Response and Systemic Resilience

Jennifer Ziemke, Associate Professor, Department of Political Science, John Carroll University, USA

Jennifer Ziemke

Jennifer Ziemke spoke of various ways to leverage the power of social media and real-time data to better understand and visualise crises. She introduced the work of International Crisis Mappers (ICM), an organisation made up of global members from a wide variety of backgrounds. Established in 2009, the ICM operated on a network of networks model and it aimed to be a portal where crisis mappers the world over could congregate to communicate ideas and share best practices.

Ziemke argued that by engaging new networks and visualising and analysing vast volumes of crowd-sourced data on crisis maps, crisis response could be enhanced and resilience built. She saw rapid technological advances as a double-edged sword, providing both opportunities and threats to societies. Cyber infrastructure, for instance, was capable of efficiently integrating societies but also rendered them vulnerable to cyber-crimes and cyber-attacks. Social media was therefore crucial in providing situational awareness in such a context.

Crowd-sourced crisis mapping had proven useful in providing critical information for enhanced crisis response after a disaster or emergency, or for monitoring elections as well as atrocities, corruption, oil spills and conflicts. The Ushaidi, a crowd-sourcing platform that collected tweets and relevant hashtags, for example, was created in 2007-2008 to collect and map social media data related to the Kenyan electoral violence. Crisis mapping had indeed grown into a global phenomenon with no centralised authority. The effort largely comprised ad-hoc, individual contributions from users. Users were able to tell their stories, ask for help and get their events on a map to help provide situational awareness. While white papers and guidelines had been generated for core issue areas such as security, liability, analysis, visualisation and data verification for crisis mapping by a diverse group of actors, including the International Committee of the Red Cross (ICRC), The Harvard Humanitarian Initiative and the UN Office for the Coordination of Humanitarian Affairs (UN-OCHA), many users remained unaware of these guidelines.

Ziemke noted three ways to leverage the crowd for situational awareness, disaster response, critical information and resilience. Firstly, crowd-sourcing could

provide the most relevant, timely, and actionable data and information in an ongoing emergency. Secondly, using the same crowd as information filters could help users overcome data overload as the crowd would also eliminate unreliable information, identify and quell rumours, detect irrelevant or biased reports, freeing up time for experts to concentrate on the most relevant data. Finally, crowd-feeding after the relevant data had been visualised and analysed could provide the original sources of information with more analysis and conceptual understanding of the situation at hand.

Ziemke concluded by suggesting that the government, academia and the private sector would need to find fresh and innovative ways to collaborate to ensure that society possessed the technological adaptive capacity to promote urban safety and security in the face of unexpected events. She believed that the rewards of engaging the public outweighed the risks, and she proposed some best practices to help societies and states respond to different kinds of crises and events.

Systemic Resilience: The Technological Puzzle
Lars Nicander, Director, Center for Asymmetric Threat Studies, Swedish National Defence College, Sweden

Lars Nicander

Lars Nicander observed that the growth of the information and communications technology (ICT) industry had boosted efficiency, productivity and GDP growth in the past three decades. For instance, smart grids, air traffic control and other essential services had become increasingly concentrated onto a single infrastructure. While such an "Internet of things" allowed governments and businesses to operate more seamlessly and efficiently,

it also created vulnerabilities. The positive effects of ICT had conversely also led to severe risks and vulnerabilities to modern critical information infrastructure. This, in turn, threatened the stability of economies and societies.

Cyber-terrorism and cyber-criminality continued to be a big threat to a highly connected networked society. Nicander argued that there was a convergence between cyber-crimes and financial crimes as payment platforms and networks increasingly became targets of malicious codes, denial-of-service (DoS) attacks, malwares, trojans, web-based attacks, and botnets. Furthermore, it was becoming evident that state-sponsored cyber-attacks were used to back up existing economic sanctions, or as a form of non-military means of power projection, as showcased by the 2007 cyber-attacks on Estonia. Such attacks might also be used as a force multiplier by non-state actors to increase the extent of damages caused by conventional military actions. While cyber-attacks were most times immediately discernible, identifying the attackers and legally defining cyber warfare had, however, proved challenging. The case of Estonia showed how a state actor could engage in cyber-attacks but could still conceal its involvement.

Nicander noted that to improve preparedness and contingency planning to combat cyber-attacks, there was a need for operational expertise. More Red Team exercises, for example, could be conducted to detect critical vulnerabilities in information networks. Government computer emergency response teams (CERTs) would also need to be operational at all times in order to be prepared for any incident. International cooperation was also essential in combating cyber-attacks. Cyber defence mechanisms to secure cyberspace – both passive and active – needed to be in place. Passive cyber defence would involve actions such as building technical expertise through exercises and courses, and active cyber defence would include the development of a legal framework to counter cyber-attacks.

Nicander concluded with a note on privacy issues. Policymakers needed to think about balancing security of the state and its critical information infrastructure from criminals and terrorists while ensuring the privacy of private individuals online.

Discussion

The discussion revolved around the topic of making the most of the technology and information gleaned from crisis mapping platforms. It was acknowledged that the horizontal nature of crowd-sourcing platforms such as crisis mapping could be challenging for traditional hierarchical organisations in the security field to overcome. There was therefore a need to understand the formal processing structure of such platforms as well as figure out ways to interface with them. Ultimately, security agencies had the choice whether or not to make use of publicly available information. That said, it ought to be noted that crowd-sourcing for information was not new and had been employed by agencies for years. Through constant ad hoc engagements as well as proper partnerships, they could continue to learn about one another and how they function.

LUNCH LECTURE
SYSTEMIC RESILIENCE: THE RADICALISATION PUZZLE – A HISTORICAL LESSON FROM MALAYA

Kumar Ramakrishna

Kumar Ramakrishna presented on the evolution of policing and law enforcement during the counterinsurgency campaign against the Communist Party of Malaya (CPM) in a period known as the Malayan Emergency (1948-60). He elaborated on the central concept of being "propaganda-minded" and examined the origins and meaning of the concept and how its gradual adoption by the Malayan police and all government departments contributed to eventual success against the Communists. A nuanced understanding of propaganda and relevant mass communication that influenced the thinking and behaviour of a targeted audience had helped change the course of the fight against Communism in Malaya.

Deeds, both planned and unplanned, had also played as important a role as words. That was why the initial efforts of the British colonial government from 1948-1952 to counter the appeal of Communism failed. Prevailing habits of imperial British policing that was coloured by racial stereotypes coupled with hardline measures such as forced resettlement, mass detention, deportation and collective punishment of rural Chinese villagers suspected of cooperating with Communists, spurred young Chinese men to go into the jungle to join the guerilla Malayan Races Liberation Army (MRLA).

The arrival of Gerald Templer and A.E. Young from the City of London Police in 1952 proved to be the turning point for anti-Communist propaganda. With the launch of a new community policing model, the police were trained to win the trust of the public by largely being the representative of positive propaganda in both words and deeds. The new measure bore fruit; by the end of 1954, the rural Chinese felt increasing confidence in the government, thereby reducing the appeal of Communism.

Ramakrishna noted that the Malayan Emergency could offer lessons for both contemporary CT (counterterrorism) and CVE (counter violent extremism) policies. Firstly, deeds were as crucial to the success of CT and CVE as words. Therefore, for any CT or CVE policies to be effective, they must seek to diminish the appeal of Al Qaeda's 'single narrative' by ensuring that the message emanating from the government's rhetoric was consistent with that emanating from its actions. An integrated propaganda-minded approach was necessary for ultimate success.

Discussion

The discussion centered on practical ways the government could utilise propaganda for national security purposes. It was suggested that any attempt to craft propaganda must be tailored to the nuances of existing context as well as take into account who the key stakeholders were.

There was no quick fix to crafting propaganda and the endeavour should be viewed as a long-term operation. It was noted that General Templer had fine-tuned his campaign to suit the needs of the operations during the long years of the Malayan Emergency, and contemporary national security policymakers needed to operate in similar fashion.

SESSION IV
SYSTEMIC RESILIENCE: PRACTICAL CASE STUDIES

Case-Based Strategies for Building Crisis Resilience
Eric Stern, Professor of Political Science/Crisis Management, Swedish National Defence College, Sweden

Eric Stern

In his presentation, **Eric Stern** shared some general thoughts about crises, assessed what could be learned from them and discussed the preeminence of leadership in overcoming crises. He stated that crises, as adverse as their effects might be, could prove greatly useful in testing extant systems and revealing frailties embedded within them. Usually shrouded with ambiguity and uncertainty, crises were difficult to manage, particularly when unfolding events were complex, unfamiliar or unexpected and further compounded by time pressures to respond. For example, in the aftermath of Hurricane Sandy, tensions emerged among agencies regarding the division of labour and emergency support. Stern argued that through careful analysis, solutions could be distilled and valuable lessons learned, making societies more resilient.

Stern emphasised the importance of studying and exchanging information on crisis cases. He listed five key takeaways from such an endeavour. Firstly, crises could help reveal threats and vulnerabilities, even if they took place elsewhere. The 2011 Anders Breivik terrorist attacks in Norway held valuable lessons for other countries. Secondly, existing assumptions and levels of preparedness could be tested. Analysts, for example, helped prove the long-held assumption that people tended to panic in crises as inaccurate; people were found to panic only when they began to feel that they had not been given adequate information and/or were denied guidelines to help themselves. Thirdly, crises could help identify obsolete practices. Fourthly, analysts could subsequently identify areas for reform and capacity building as well as possible best practices. The study of the London 7/7 bombings, for example, revealed an outstanding example of crisis communication. Finally, crises could be a valuable resource for education, training and exercise.

In overcoming any crisis, leadership skills were important. The leaders' tasks were in preparing, sense-making, decision-making, meaning-making, accounting as well as learning and changing. To build resilient crisis leadership, leaders needed to understand that crisis management was hard and often took place in politically complex environments. Also, good preparation, including education and training, made a big difference. Good procedures and checklists were helpful but there needed to be room for flexibility should crises hit. Finally, as effectual crisis leadership could significantly improve the likelihood of a good outcome, core crisis management skills included incisive problem diagnosis, creative problem-solving, qualified improvisation as well as effective crisis communication.

Resilience Lessons Learned from Hurricane Sandy
Steve Flynn, Professor of Political Science, and Founding Director, Center for Resilience Studies at Northeastern University, Boston, USA

Steve Flynn

Drawing lessons from Hurricane Sandy, **Steve Flynn** highlighted some shortcomings in the crisis planning to deal with the adverse effects of the storm and provided illustrative instances to underscore the importance of preparedness.

The severity of Hurricane Sandy had been unparalleled: close to 160 individuals died, 380,000 homes were damaged or destroyed, 8.6 million people across seventeen states were affected by power losses, and about US$18 billion was spent for debris removal. A particular failure on the part of the crisis planners was in miscalculating the effects of the super storm. Many had assumed that the wind would be the biggest problem. In reality, it was the wall of water the hurricane pushed inland that caused most damage. Another major challenge for crisis planners was in translating expert insights into information that decision-makers could use promptly. In this case, researchers from the Stevens Institute of Technology had accurately predicted massive flooding and ran a simulation to key decision-makers of the impact of the floods on Hoboken, New Jersey. Parts of the city were evacuated in time, but more could have been done earlier.

Flynn further shed light on the importance of preparedness to mitigate the effects of the storm by detailing how two nearby private banking institutions attempted to physically secure their respective buildings. One had put up a wall of stacked sandbags at the building entrance while the other had made only the most rudimentary efforts using a few sandbags and a plastic sheet taped to the front door. The latter building was consequently flooded. Another similar comparison was made between two transport operators. The Metropolitan Transport Authority (MTA) of New York made the decision to move their trains to higher grounds whereas the New Jersey Transit did not; the latter suffered massive damage to their trains as a result. In the aftermath of the storm, the MTA had also provided incentives to their employees to come back to work, further underscoring how people remained central to any recovery effort.

In conclusion, Flynn recommended elevating 'risk literacy' amongst public officials and the general public. The forging of resilience also involved design in advance, i.e., 'resilience engineering', as well as an operational capacity to manage and recover with a focus on ensuring the continuity of essential functions. A deeper understanding of interdependencies and the cascading effects that a major disruption could generate were also necessary to build resilience.

Systemic Resilience: Case Studies
Majeed Khader, Director and Senior Consultant Psychologist, Home Team Behavioural Sciences Centre, Home Team Academy, Singapore

Majeed Khader

Majeed Khader discussed how the notion of resilience could be variously conceptualised. Drawing on definitions from a range of fields such as engineering, ecology and psychology, he argued that resilience essentially referred to the ability of an entity (or an organisation) to keep true to its core values and functions in the event of a crisis. He also argued that the nature of a crisis was characterised by a state of "un-ness" (i.e., usually in reference to adjectives that were prefixed with "un" such as unease, unrest, unknown, unlikely, unjust, etc.). Such "un-ness" was often compounded by the fact that crises tended to unfold quickly. Simultaneous problems all arising at the same time would further complicate

most responses. Therefore, a keen awareness of the nature and the characteristics of the "un-ness" was crucial. Good data accumulation before and after a crisis would certainly help in making informed decisions. Good human analysts to make sense of such data and interpret it for decision-makers were crucial as well.

Rooting the concept of resilience in systems theory, Khader explained that an organisation should be regarded as a system that was composed of interrelated parts or components that cooperated in processes. He emphasised the importance of understanding the linkages and interactions between and among the various components since small events separated by distance and time could cumulatively cause significant changes to the wider system. It was also not uncommon that tweaks made to one section of a system could have unforeseen adverse effects on another. For a system to be resilient, a comprehensive overview was necessary.

Systemic resilience took different shapes and forms, but Khader believed they possessed five key characteristics: (i) robustness, which meant that they had adaptive mechanisms; (ii) redundancy, which meant that backups were in place and there were diverse solutions available to deal with any one crisis situation; (iii) resourcefulness, which meant that there was a capacity for self-organisation, creativity and innovation; (iv) responsiveness, which meant that effective communication and participation could take place; and (v) recovery, which meant that horizon scanning was done and regulatory feedback was provided.

Discussion

On the issue of forecasting and predicting disasters, a question was raised about whether there was a gap between what we could possibly know and our capacity to change the ultimate outcome. It was noted that at least two things could be predicted at the advent of Hurricane Sandy: firstly, that there would be floods, and secondly, that such floods could be mapped, particularly with the help of state-of-the-art predictive technology. Accordingly, it would have been possible to mitigate, albeit not all, but at least some of the more lasting suffering and damages. That said, because there were competing flood models and simulations, determining which was most probable had become an additional challenge. Despite an information-rich environment, the full effects of major natural disasters could not be fully avoided.

More 'man-made' crises were also discussed. On the issue of whether resilience was evident in Singapore when the riot broke out in Little India, there was an opinion that demographic factors and cultural norms were important elements that needed to be further studied. Cultures, both social and political, arguably lay at the crux of the different ways different peoples react to and recover from crises. It was therefore important to continue engaging the Singapore populace in order to both understand and shape the general culture, with resilience as the goal.

SYSTEMIC RESILIENCE: THE MASTER NARRATIVE PUZZLE

Eugene Tan

Eugene Tan spoke about the role of master narratives in building societal resilience, which had become an important public policy objective. Narratives, as a means for societies to interpret and commemorate shared values and experiences, played an important part in such an endeavour. Tan noted how master narratives allowed societies to make connections between the past, present and future aspirations and bridge inter-generational societal expectations. Narratives, therefore, was an important tool in fostering social resilience, an imperative element for a society to "keep calm and carry on" in the face of crises.

However, challenges abound, particularly when such narratives neither adequately represent present day realities nor take into account competing or conflicting narratives. Issues would also arise should such narratives be too focused on showcasing vulnerabilities at the expense of building hopes and aspirations. Master narratives needed to be able to promote a whole-of-society approach towards resilience.

Drawing from the Singapore context, Tan illustrated the need for master narratives to be flexible in recognising the existence of multiple social identities while at the same time encouraging consensus building as well as a common civic identity. There existed social cleavages based on racial and religious identities and, more recently, between the citizenry and the new immigrants; a good master narrative was therefore needed to merge them all. Tan further argued that there should be a focus on soft law instruments to engender desired norms, values and mindsets as hard laws had limited role to play in developing social resilience. A whole-of-government approach should give way to a whole-of-society approach because social identities – religious, for instance – were felt at the individual, community and national levels and could potentially affect how an individual behaved in different situational contexts. Accordingly, it was important to have a holistic approach that regarded religion not simply as a potential security threat, but more crucially, as a vital force that could contribute to nation building.

In conclusion, while the concept of social resilience had gained popularity and policy relevance, it had to be aligned with prevailing narratives in order to enable a society to adapt to adverse changes. More significantly, it was necessary to strike a balance between maintaining societal preparedness without producing a sense of heightened vulnerability.

Discussion

There were discussions about whether there was an overreliance on professionals to manage risks and threats in modern societies and how governments could boost engagements with different communities to generate a whole-of-society approach to resilience. It was noted that a major challenge any government faced in building societal resilience was that they had to deal with different communities that had, among other things, different resource capacities and capabilities. Governments therefore needed to exercise care in identifying which representatives of the communities they worked with and whether the representatives truly had traction on the ground.

Another topic of discussion revolved around how governments could appropriately tackle the issue of individuals who might not want to partake in resilience building programmes. It was recognised that not everyone might agree with programmes proposed by the government. Such a case underscored the importance of master narratives that had broad appeal so everyone could feel that they were part of the society.

SYSTEMIC RESILIENCE: A FUTURE LENS

Foresight and Public Policy: The Singapore Experience
Kwa Chin Lum, Head, Centre for Strategic Futures, and Deputy Director, Strategic Policy Office, Public Service Division, Prime Minister's Office, Singapore

Kwa Chin Lum

Kwa Chin Lum discussed the Singapore experience with foresight and how that helped create systemic resilience by better preparing Singapore for the future. He explained the country's rationale for and approach to foresight, emerging issues for public policies, and the process by which foresight were applied to policies.

Historically, strategic decisions in Singapore had been taken with long-term vision in mind. For instance, the founding fathers had envisioned the establishment of a First World state that extended beyond good infrastructures to good governance. Ultimately, Kwa argued, in a world that was increasingly volatile, complex and ambiguous, planning was indispensable as it helped provide the confidence to manage uncertainties and seek advantages of emerging issues and opportunities in the long run. While some plans might not turn out useful, the process of planning remained crucial because it helped the government think about all vulnerabilities and make contingency plans.

Kwa further shared that Singapore's approach to foresight had evolved from a narrow emphasis on defence in the 1980s to a more comprehensive one. The government realised that the scenario-planning tool used by the defence ministry was increasingly inadequate to tackle unpredictable threats like economic crisis. Two new institutions – Risk Assessment and Horizon Scanning Office and the Centre for Strategic Futures – were therefore founded to explore the use of different tools for foresight. Furthermore, New Futures units were established in various ministries to develop a more comprehensive foresight from a whole-of-government perspective.

Kwa subsequently elaborated on the 2030 Scenarios developed by his Strategic Futures outfit, which consisted of external and internal issues. Externally, emerging issues included, among others, how the changing global balance of power could influence current affairs and potentially affect Singapore as well as food security. Internally, emerging strategic issues included increasing diversity and how it could affect key government institutions.

To apply the scenarios to public policies, Kwa noted the necessary three steps: (i) researching issues; (ii) communicating ideas, and (iii) generating policies. He shared how, once the research for the 2030 Scenarios was completed in 2011, it took about a year to communicate the ideas to relevant policymakers. In order to avoid groupthink and lack of imagination in generating policies, the outfit had also engaged with academics and civil society to bring in diverse viewpoints on futures.

In conclusion, Kwa maintained that the government should think about the future as a pluralised 'futures' considering the endeavour often raised more alternatives and questions than answers. Building systemic resilience would necessitate not only whole-of-government and whole-of-society approaches, but also a future-oriented mindset.

8TH ASIA-PACIFIC PROGRAMME FOR SENIOR
7th - 11th April 20

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Seated
(Left-Right)
Mr Steve Glassey, Dr John Plodinec, Prof Carmen Sirianni, Dr Campbell McCafferty, Ms Jennifer Giroux, Mr Ric
Mr David Ong Kim Huat, Amb Barry Desker, Amb Chan Heng Chee, Assoc Prof Kumar Ramakrishna, Dr Norma

Standing
1st Row
Ms Ng Suat Peng, Mr Hyunjae Lee, Dr Bataa Mishig-Ish, Mr Kenechanh Phommachack, Ms Karen Lim Shu Wen
Ms Celina Lua, Mdm Syn Peck Khay, Ms Sally Ang, Dr Fu Xiao, Mr Tan Cheow Beng David, ME6 Ng Yong Ten

2nd Row
Mr Lim Cheng Yong, SUPT Chang Gim Fook, CAPT Kevin Wong, Mr Lester Chua Chee Heong, Mr Koh Hern M
Mr Mohamed Don Harith, Ms Perlita A. Tabisaura, LG Jose Pompeu dos Magalhaes Brasil Filho, SUPT Chua Yer
Mr Danial Phua, Ms Tiow Bee Leng

3rd Row
Mr Mohamad Kamal, COL Neil Dyason Alan, SUPT Timothy Choo Wei Liang, COL Myo Thu Soe, Mr Douglas Y
COL Ibrahim Alluhidan, SUPT Alan Koo, Mr Steven Lee Koon Kee, Ms Carin Kaunitz, SUPT Samsuddin bin Ka

Last Row
Mr Per Kristen Brekke, Mr Soren Lindholm, MAJ Colin Oliver, MAJ Suppiah Krishnan, Mr Tee Eng Poh, COL L
Mr Suresh Jangu, Mr Cheong Chun Choy Richard, LTC Chow Mun Keong Alan

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R NATIONAL SECURITY OFFICERS (APPSNO)
014, Singapore

With the Support of

NSCS
NATIONAL SECURITY
COORDINATION SECRETARIAT

chard Lim, Mr Lim Kok Thai, DC Jackson Lim, Mr Peter Ho, PS Benny Lim, Mr S Iswaran,
an Vasu, Mr Steve Brazier, Dr Jen Ziemke, Mr Lars Nicander, Dr Eric K Stern, Prof Douglas Paton

n, SUPT Goh Kim Chuan Deculan, SUPT Ong Chin Chuan, Mr Roi Phua Thai Kiat, Mr Sean Quek Boon Lee,
g, SUPT Wong Hong Meng, Mr Teow Loo Nin, Mr Tan Kim Seng, Mr Loh Kean Wah, Ms Sulastri Osman

Mao Sherman, BG Ahmed Tabrej Shams Chowdhury, Mr Tan Chong Hee,
ng Eng, Ms Wendy Chio Sue Lin, COL Bilal Awad, Mr Pel Chanvirak, Mr Mark Andrew Bellchambers,

Yeo Song Huat, SLTC Lee Wee Lee, Mr Tan Gwee Khiang, Mr Edwin Pang Thiam Chuah, CAPT Le Minh Luyen,
alil, Mr Lim Choong Khiang, COL Wong Weng Kong

Lee Weng Foo, Mr Tayfun Sezer, Mr Josh Delong, Mr Thanakorn Buaras, Mr Lee Shih Yen, Mr Waheed,

Future Focus: Disaster Terrorism
Steve Glassey, Associate Director, Centre for Risk, Resilience and Renewal, University of Canterbury, New Zealand

Steve Glassey

Steve Glassey defined disaster terrorism (DTER) as a type of terrorism whereby terrorists used natural disasters to amplify the effects of a traditional terrorist instrument, causing a force multiplier-type of impact on public safety. He further explained the concept of DTER and its policy implications by illustrating a hypothetical DTER scenario.

The scenario was set in Australia involving a fictional extremist group that exploited a bushfire disaster to perpetrate a terror attack: the first attack, namely the bombing of a sports hall used as a shelter for bushfire evacuees, occurred when emergency services were most vulnerable as their resources were already stretched to respond to the fire. The attack aimed to create fear and encourage people to remain in their homes, while the perpetrators exacerbated the impact of the natural disaster by further spreading the fire. The mix of natural disaster and terror incidents then created a leadership rift and jurisdictional complication between the Fire Services and the Federal Police, which all in all contributed to inefficient response.

Glassey argued that such a scenario was plausible because it could provide terrorists with more return on investment. Natural disasters could serve as a force multiplier for terrorism – both physically and psychologically. Physically, DTER could inflict more damage on human lives and the economy. It could also amplify psychological fear because DTER would strike a community when they were already significantly down. DTER could therefore attract more media attention and raise the profile of the perpetrators.

Glassey suggested that the government prepare for the threat of DTER by developing an all-hazards approach.

Such an approach would require the government to better align the emergency services with the national security one. As illustrated by the scenario, disconnect between the two systems would render them vulnerable to new and multiple threats that could not be neatly categorised as one type but were merged. That said, simply merging the two departments into one was not the solution. Drawing from the New Zealand experience, when the government recently merged the Ministry of Civil Defence and Emergency Management into a new department, it did not address fundamental problems that made the two systems incompatible. For example, meaningful information sharing was hampered because of different organisational styles and cultures: the national security system was highly centralised and secretive in their information management, whereas the emergency services were largely managed by local governments that lacked the necessary national security clearances. Rather than establishing an entirely new department, Glassey recommended that the government should focus on breaking down silos and improving dialogue and interoperability between existing emergency and national security systems.

Security, Risk and Quantum Events
James Der Derian, Director, Centre for International Security Studies, University of Sydney, Australia

James Der Derian

James Der Derian highlighted emerging risks and vulnerabilities that stemmed from increasingly networked critical infrastructures and presented four crisis scenarios to illustrate some novel security challenges.

The first hypothetical scenario illustrated how the United States government's misdiagnosis on the cause of failure of its local electrical power grid prompted military skirmishes in the Middle East. The second scenario lumped together five science fiction stories to make the point that random,

isolated local incidents could cascade and have global repercussions. Der Derian observed that social scientists often failed to predict complex events stemming from the cascading effects of isolated local events because they relied more on linear, quantifiable methods than complexity and quantum theories.

In the third scenario, Der Derian showed that although new threats were characterised by multiple causes and multi-variant complex events, in the age of the Information Bomb, digital global media could be the single major catalyst of a range of global crises ranging from cyber war to global financial crash, and most prominently, technologically enabled, media-amplified terrorism. That said, the coming of a new age of quantum computers could create even greater challenges than that of digital global media. The last scenario accordingly revolved around recent revelations about the US National Security Agency's quantum computer project. It was evident that the quantum theory contributed to massive destructive power that manifested in the invention of atomic bomb. If quantum went online, it would also generate both good and bad things for national security. NSA's research indicated that quantum computing could solve complex problems – which binary computers might take a long time to solve – simultaneously and in a matter of seconds. In terms of critical technological infrastructures, security scholars and practitioners would need to anticipate the potential impacts of quantum computing on encryption, decryption and predictions.

Der Derian drew three lessons from the scenarios. Firstly, the networked nature of critical infrastructures would make it difficult to discern the cause and effects of an attack. The 'quantum blurring' of cause and effect would in turn make it more difficult to map but also to prevent and effectively manage future critical infrastructure events. Secondly, every new critical infrastructure had built-in vulnerability as well as potential to produce disasters. On the bright side, the problems generated by these new technologies could also act as diagnoses for improvement or grounds for termination. Finally, given the

cascading critical infrastructure failures, sovereign states were no longer able to fulfill their traditional role as the sole security provider. Hence, the task of preventing and mitigating critical infrastructure failures was increasingly hinged on local, regional and international communities.

Discussion

Of interest during the discussion was the question of the role of technology vis-à-vis politics in shaping the future. A participant raised the idea that, rather than technology, present policy options could be more significant in shaping the future of security and resilient system. There was an opinion that there was indeed a false assumption that technological advancements would automatically lead to resilience. It was assumed that to control the future, one should fix the system because the system was more predictable than human being and politics. However, such an assumption did not hold true in the current context of the networked system wherein the failure of a system of systems could run beyond all scenarios and exercises. Exercises that relied too much on a technocratic approach could overlook the significance of human history and adaptability. To better predict the future, the government needed exercises that encouraged human creativity.

Another participant asked about the value of scenario-making as a prediction tool. It was mentioned that among the challenges of prediction and scenario-making is that ungrounded fear could be generated, thereby limiting the government's focus to only a specific actor or issue. It was argued that the process of scenario-making was nevertheless important to encourage thinking-out-of-the-box mindset among national security officers. For instance, although much attention had been given to natural disaster, more complex scenarios such as disasters as a force multiplier were not on the radar. Scenarios were therefore useful to avoid groupthink and lack of imagination.

MOVING FROM A "SECURITY" TO A "RESILIENCE" MINDSET: A NECESSARY SHIFT FOR PRACTITIONERS?

Steve Flynn

Steve Flynn's presentation centered on the concept of resilience, which had become a key security imperative for the United States. Resilience was defined as the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions. That included the capacity to withstand and recover from man-made or natural threats. Flynn noted that the focus on resilience marked a fundamental change from a threat-based, linear way of thinking about risks to an emphasis on core values through the reduction of vulnerabilities and consequences. The emphasis on the reduction of vulnerabilities would reduce potential threats as well which, in turn, would reduce the risks faced by societies. Hence, in the long run, the turn towards resilience would prove to be a more sustainable means of dealing with the complexities of present-day urban societies.

Flynn argued that a resilience-centric approach for assessing, prioritising and addressing critical infrastructure risks necessarily involved the following steps: (i) identifying the critical functions; (ii) modelling the infrastructure system; (iii) evaluating the vulnerabilities of the infrastructure of the risks of disruption; (iv) evaluating the consequences arising from such disruptions which would include considering the worst case scenarios; (v) distinguishing between essential and normal functions; and (vi) based on those evaluations, identifying and adopting resilience design features, processes and protocols that could mitigate the risks of disruption and ensure quick recoveries.

To forge societal resilience on the other hand, a bottom-up, open and inclusive process involving all from the community was needed. This could be achieved through encouraging more research to better conceptualise resilience initiatives, supporting early and widespread adoption of resilience applications, tools and protocols by establishing standards and codes, as well as identifying and deploying economic incentives for adopting the requisite standards and codes.

In conclusion, Flynn reiterated the importance of resilience as a means for societies to better cope with major shocks. At the same time, resilience could serve as a deterrent factor against the threat of asymmetric terrorist attacks. Success in building resilience would ensure local, regional and national competitiveness, reassuring investors and the general population alike that the social system in question could manage and effectively navigate today's complex threats.

Discussion

In response to the question whether there was a possibility that the drive to be resilient could produce more insecurity and instability, it was pointed out that one of the main attributes of a resilient society – having core systems that could not be easily compromised – served as a strong deterrence against asymmetric warfare such as terrorism. In other words, if a target was perceived to emerge unfazed by a terrorist attack because it would stand resilient in the aftermath, it would become less attractive as a target.

To a query on how societies could capitalise on lessons learnt about resilience by channeling such lessons through the education system, the use of community-based tools to engage and educate students was recommended. Educating children on resilience initiatives would also be a means of encouraging adults to take part in such endeavours.

PROGRAMME

SUNDAY, 6 APRIL 2014

0000 – 2359hrs **Arrival of Speakers & Participants**
Venue:
The Singapore Resort & Spa Sentosa,
Managed by Accor

1500 – 1730hrs **Registration of Speakers & Participants**
Venue:
Conference Secretariat
Kusu Room, The Singapore Resort &
Spa Sentosa, Managed by Accor

1830 – 2100hrs **Welcome Dinner**
Hosted by:
Barry Desker, *Dean, S. Rajaratnam
School of International Studies (RSIS),
Nanyang Technological University (NTU),
Singapore*

Lim Kok Thai, *Senior Director,
National Security Coordination Centre
(NSCC), Prime Minister's Office,
Singapore*

Venue:
Poolside, The Singapore Resort &
Spa Sentosa, Managed by Accor

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

Monday, 7 April 2014

0730 – 0930hrs **Breakfast**
Venue:
The Terrace Restaurant, The Singapore
Resort & Spa Sentosa, Managed
by Accor

0930 – 1020hrs **Arrival of guests**
Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1020hrs **All guests to be seated**
Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1020hrs **Arrival of Guest-of-Honour**
Venue:
The Straits Ballroom,
The Singapore Resort &
Spa Sentosa, Managed by Accor

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

1030hrs **Welcome Remarks**
Welcome Remarks by **Barry Desker**,
*Dean, S. Rajaratnam School of
International Studies (RSIS),
Nanyang Technological University (NTU),
Singapore*

Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1040hrs   **Opening Address**
Opening Address by **S Iswaran**,
Minister in Prime Minister's Office,
Second Minister for Home Affairs and
for Trade and Industry, Singapore

Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1100 – 1130hrs   **Reception / Coffee Break**
Venue:
Straits Verandah, The Singapore Resort
& Spa Sentosa, Managed by Accor

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

1130 – 1215hrs   **Group Photo-taking**
Venue:
The Saffron Ballroom I, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1215 – 1230hrs   **Introduction to RSIS, CENS and**
APPSNO
Presenter:
Kumar Ramakrishna, Head,
Centre of Excellence for National
Security (CENS), RSIS, NTU, Singapore

Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1230 – 1315hrs   **Lunch**
Venue:
Straits Verandah, The Singapore Resort
& Spa Sentosa, Managed by Accor

Attire:
Casual (APPSNO T-shirt) and equivalent
attire for women. No shorts and
slippers

1315 – 1455hrs   **Session I**
Systemic Resilience: Strategic
Frameworks for National Security
and Resilience
Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

Attire:
Casual (APPSNO T-shirt) and equivalent
attire for women. No shorts and
slippers

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

Speakers:
Campbell McCafferty, *Director,*
Civil Contingencies Secretariat,
Cabinet Office, UK

Steve Brazier, *Director, Security and*
Risk Group, Department of
Prime Minister and Cabinet, NZ

Jennifer Giroux, *Senior Researcher,*
Center for Security Studies,
ETH Zurich, Switzerland

Lim Kok Thai, *Senior Director,*
National Security Coordination Centre,
Prime Minister's Office, Singapore

1455 – 1525hrs **Briefing On The Trailogy @**
Singapore River
Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

1525 – 1900hrs **The Trailogy @ Singapore River &**
River Boat Ride
Attire:
Casual (APPSNO T-shirt) and equivalent
attire for women. No shorts and
slippers

1900 – 2100hrs **Networking Dinner**
Venue:
AquaMarine, Marina Mandarin
Singapore

Attire:
Casual (APPSNO T-Shirt) and
equivalent attire for women. No shorts
and slippers

Tuesday, 8 April 2014

0730 – 0845hrs **Breakfast**
Venue:
The Terrace Restaurant, The Singapore
Resort & Spa Sentosa, Managed
by Accor

0845 – 1030hrs **Foreign Participants' Presentation**
on Homeland Security Management
(HSM)
(Australia, Bangladesh, Brazil, Brunei,
Cambodia, China & United Kingdom)
Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1030 – 1045hrs **Coffee Break**
Venue:
Straits Verandah, The Singapore Resort
& Spa Sentosa, Managed by Accor

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

1045 – 1215hrs **Session II**
Systemic Resilience: A Community
Perspective
Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

Chairperson:
Bilveer Singh, *Adjunct Senior Fellow,*
Centre of Excellence for National
Security (CENS), RSIS, NTU, Singapore

Speakers:
Carmen Sirianni, *Morris Hillquit Professor in Labor and Social Thought and Professor of Sociology and Public Policy, Brandeis University, USA*

Douglas Paton, *Personal Chair, School of Psychology, University of Tasmania, Australia*

John Plodinec, *Associate Director, Resilience Technologies - Community and Regional Resilience Institute, Meridian Institute, USA*

Question and Answer Session

1215 – 1330hrs **Lunch**

1400 – 1700hrs **Perspectivity Game**
Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

Facilitators:
Perspectivity Foundation

1700 – 1900hrs **Networking Time**

1900 – 1930hrs **Cocktail Reception**
Venue:
Straits Verandah, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1930 – 2130hrs **Alumni Dinner Lecture**
Systemic Resilience: The Whole-of-Government Puzzle
Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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, Singapore*

Speaker:
Peter Ho, *Chairman, URA Board; Senior Adviser Centre for Strategic Futures; Senior Fellow, Civil Service College, Singapore*

Wednesday, 9 April 2014

0730 – 0845hrs **Breakfast**
Venue:
The Terrace Restaurant, The Singapore Resort & Spa Sentosa, Managed by Accor

0845 – 1030hrs **Foreign Participants' Presentation on Homeland Security Management (HSM)**
(Denmark, India, Indonesia, Jordan, Laos, Malaysia & Mongolia)
Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1030 – 1045hrs	**Coffee Break**			Attire:
	Venue:			Smart casual (long-sleeved shirt
	Straits Verandah, The Singapore Resort			without tie) and equivalent attire
	& Spa Sentosa, Managed by Accor			for women

Coffee Break

Venue:
Straits Verandah, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1045 – 1145hrs Session III
Systemic Resilience:
The Technological Puzzle
Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

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

Speakers:
Jen Ziemke, *Associate Professor, Department of Political Science, John Carroll University, USA*

Lars Nicander, *Director, Center for Asymmetric Threat Studies, Swedish National Defence College, Sweden*

Question and Answer Session

1145 – 1330hrs Lunch Lecture
The Radicalisation Puzzle – A Historical
Lesson from Malaya
Venue:
Saffron Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

Chairperson:
Sulastri Osman, *Research Fellow, Centre of Excellence for National Security (CENS), RSIS, NTU, Singapore*

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

1330hrs Depart for Cable Car Ride

1345 – 1515hrs Cable Car Ride to Mount Faber and
Transport to Singapore Civil Defence
Academy

1515 – 1800hrs Tour of Singapore Civil Defence
Academy

1800hrs Return to Hotel
(End of Programme for the day)

Thursday, 10 April 2014

0730 – 0845hrs Breakfast
Venue:
The Terrace Restaurant, The Singapore Resort & Spa Sentosa, Managed by Accor

0845 – 1030hrs Foreign Participants' Presentation
on Homeland Security Management
(HSM)
(Myanmar, Norway, Pakistan, Philippines, Saudi Arabia, South Korea & United States)
Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1030 – 1045hrs **Coffee Break**
Venue:
Straits Verandah, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1045 – 1215hrs **Session IV**
Systemic Resilience: Practical Case Studies
Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

Chairperson:
Caitríona H. Heinl, *Research Fellow, Centre of Excellence for National Security (CENS), RSIS, NTU, Singapore*

Speakers:
Eric Stern, *Professor of Political Science/Crisis Management, Swedish National Defence College, Sweden*

Steve Flynn, *Professor of Political Science, Founding Director, Center for Resilience Studies, Northeastern University, USA*

Majeed Khader, *Director and Senior Consultant Psychologist, Home Team Behavioural Sciences Centre, Home Team Academy, Singapore*

Question and Answer Session

1215 – 1330hrs **Lunch**
Venue:
Straits Verandah, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1330 – 1445hrs **Syndicate Discussions**
Syndicate 1
Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

Syndicate 2
Venue:
Nutmeg 1, The Singapore Resort & Spa Sentosa, Managed by Accor

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

Syndicate 3
Venue:
Nutmeg 2, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1445 – 1500hrs **Coffee Break**
Venue:
Straits Verandah, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1500 – 1720hrs **Networking Time**

1720hrs **Depart for Distinguished Dinner
Lecture at Resorts World Convention
Centre**
Venue:
Meet at Conference Lobby,
The Singapore Resort & Spa Sentosa,
Managed by Accor

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

1800 – 1900hrs **Distinguished Dinner Lecture
Systemic Resilience: The Master
Narrative Puzzle**
Venue:
Gemini 1-2, Resorts World Convention
Centre, Resorts World Sentosa

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

Chairperson:
Barry Desker, *Dean, RSIS, NTU*

Speaker:
Eugene Tan, *Associate Professor of
Law, Singapore Management
University; Nominated Member of
Parliament, Singapore*

Question and Answer Session

1900 – 2000hrs **Cocktail Reception**
Venue:
S.E.A Aquarium, Resorts World Sentosa

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

2000 – 2130hrs **Dinner**
Venue:
S.E.A Aquarium, Resorts World Sentosa

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

Friday, 11 April 2014

0730 – 0845hrs **Breakfast**
Venue:
The Terrace Restaurant, The Singapore
Resort & Spa Sentosa, Managed
by Accor

0845 – 1030hrs **Foreign Participants' Presentation
on Homeland Security Management
(HSM)**
(Sweden, Thailand, Turkey & Vietnam)
Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1030 – 1045hrs **Coffee Break**
Venue:
Straits Verandah, The Singapore Resort
& Spa Sentosa, Managed by Accor

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

| 1045 – 1215hrs | **Session V** |
| | **Systemic Resilience: A Future Lens** |

Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

Chairperson:
Sulastri Osman, *Research Fellow, Centre of Excellence for National Security (CENS), RSIS, NTU, Singapore*

Speakers:
Kwa Chin Lum, *Deputy Director, Strategic Policy Office, Public Service Division, Singapore*

Steve Glassey, *Associate Director, Centre for Risk, Resilience and Renewal, University of Canterbury, New Zealand*

James Der Derian, *Director, Centre for International Security Studies, University of Sydney, Australia*

Question and Answer Session

| 1215 – 1430hrs | **Distinguished Lunch Lecture** |
| | **Moving from a "Security" to a "Resilience" Mindset: A Necessary Shift for Practitioners?** |

Venue:
Saffron Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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*

Speaker:
Steve Flynn, *Professor of Political Science, Founding Director, Center for Resilience Studies, Northeastern University, USA*

| 1430 – 1545hrs | **Syndicate Discussions** |
| | **Syndicate 1** |

Venue:
The Straits Ballroom, The Singapore Resort & Spa Sentosa, Managed by Accor

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

Syndicate 2
Venue:
Nutmeg 1, The Singapore Resort & Spa Sentosa, Managed by Accor

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

Syndicate 3
Venue:
Nutmeg 2, The Singapore Resort & Spa Sentosa, Managed by Accor

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

| 1545 – 1600hrs | **Coffee Break** |

Venue:
Straits Verandah, The Singapore Resort & Spa Sentosa, Managed by Accor

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

1600 – 1830hrs **Networking Time**

1830 – 1900hrs **Cocktail Reception**
Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

1900 – 2130hrs **Certificate Presentation Ceremony
and Closing Dinner**
Hosted by:
Benny Lim, *Permanent Secretary,
National Security and Intelligence
Coordination, Singapore*

Venue:
The Straits Ballroom, The Singapore
Resort & Spa Sentosa, Managed
by Accor

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

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, strategizing 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 strategizing 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 currently conducts research in three key areas of national security:

• Risk Assessment/Horizon Scanning
  - The art and science of detecting "weak signals" emanating from the total security environment so as to forewarn policymakers, the private sector and the public about approaching "shocks" such as terrorism, pandemics, energy crises and other easy-to-miss trends and ostensibly distant events.

• Social Resilience

  - The capacity of globalized, multicultural societies to hold together in the face of systemic shocks such as diseases and terrorist strikes.

• Homeland Defence Programme
  - The security of land-based, aviation and maritime transport networks and increasingly, the total supply chain vital to Singapore's economic vitality.
  - Health, water and food security.
  - Crisis communications and management.

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 organizes 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 risk assessment and horizon scanning, multiculturalism and social resilience, intelligence reform and defending critical infrastructure against mass-casualty terrorist attacks

How Does CENS Keep Abreast of Cutting Edge National Security Research?

The lean organizational 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 on CENS
Log on to http://www.rsis.edu.sg and follow the links to "Centre of Excellence for National Security".

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

- Provide a rigorous professional graduate education in international affairs with a strong practical and area emphasis

- Conduct policy-relevant research in national security, defence and strategic studies, diplomacy and international relations

- Collaborate with like-minded schools of international affairs to form a global network of excellence

Graduate Training in International Affairs

RSIS offers an exacting graduate education in international affairs, taught by an international faculty of leading thinkers and practitioners. The Master of Science (MSc) degree programmes in Strategic Studies, International Relations, and International Political Economy are distinguished by their focus on the Asia Pacific, the professional practice of international affairs, and the cultivation of academic depth. Over 120 students, the majority from abroad, are enrolled in these programmes. A small, select Ph.D. programme caters to advanced students whose interests match those of specific faculty members. RSIS also runs a one-semester course on '*The International Relations of the Asia Pacific*' for undergraduates in NTU.

Research

RSIS research is conducted by five constituent Institutes and Centres: the Institute of Defence and Strategic Studies (IDSS, founded 1996), the International Centre for Political Violence and Terrorism Research (ICPVTR, 2002), the Centre of Excellence for National Security (CENS, 2006), the Centre for the Advanced Study of Regionalism and Multilateralism (CASRM, 2007); and the Consortium of Non-Traditional Security Studies in ASIA (NTS-Asia, 2007). 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 S. Rajaratnam Professorship in Strategic Studies brings distinguished scholars and practitioners to participate in the work of the Institute. Previous holders of the Chair include Professors Stephen Walt, Jack Snyder, Wang Jisi, Alastair Iain Johnston, John Mearsheimer, Raja Mohan, and Rosemary Foot.

International Collaboration

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

ABOUT NSCS

The National Security Coordination Secretariat (NSCS) was set up in the Prime Minister's Office in Jul 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 the Deputy Prime Minister Professor S. Jayakumar, who is also Minister for Law.

NSCS is headed by Permanent Secretary (National Security and Intelligence Coordination). The current PS(NSIC) is Mr Peter Ho, who is concurrently Head of Civil Service and Permanent Secretary for Foreign Affairs.

NSCS provides support to the ministerial-level Security Policy Review Committee (SPRC) and Senior official-level National Security Coordination Committee (NSCCom) and Intelligence Coordinating Committee (ICC). It organises and manages national security programmes, one example being the Asia-Pacific Programme for National Security Officers. NSCS also funds experimental, research or start-up projects that contribute to our national security.

NSCS is made up of two components: the National Security Coordination Centre (NSCC) and the Joint Counter-Terrorism Centre (JCTC). Each centre is headed by a director.

NSCC performs three vital roles in Singapore's national security: national security planning, policy coordination, and anticipating strategic threats. As a coordinating body, NSCC ensures that government agencies complement each other, and do not duplicate or perform competing tasks.

JCTC is a strategic analysis unit that compiles a holistic picture of terrorist threat. It studies the levels of preparedness in areas such as maritime terrorism and chemical, biological and radiological terrorist threats. It also maps out the consequences should an attack in that domain take place.

More information on NSCS can be found at **www.nscs.gov.sg**