Security challenges from the perspective of a small city state

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Richard Lim, Rear Admiral (Retired) RSN
Chief Executive
Defence Science and Technology Agency
Singapore has enjoyed 42 years of peace and economic progress as an independent nation.

Key contributors to success:
- A diversified and open economy plugged into the global marketplace
- A strong commitment to defence and security (6% GDP)
- Social and religious harmony
But the fundamentals behind its security challenges remain basically unchanged since independence in 1965.
Singapore
- Area = 707 sq km (22% reclaimed)
- 42 km length; 23 km breadth
- Population = 4.3m (3.2m citizens)

New York City
- Area = 785 sq km
- Population = 8 million

- No strategic depth
- Small population
- Limited space for military training
No strategic depth

- Persistent stand-off long range surveillance & early warning
- Robust air and island defence capabilities
- Protection of critical assets against surprise attack
- High operational readiness to respond quickly to threats
- Total Defence: civil, psychological, economic, social and military
Conscript Armed Forces
Two years of national service
300,000 when mobilised
Limited space for military training

Overseas Training

- France
- Thailand
- Brunei
- Australia
- New Zealand
- United States
- South Africa
Our security challenges have become more complex
The very elements that enable our success and prosperity have become key vulnerabilities.

Changi Airport

80 airlines with more than 4000 flights connecting to more than 180 cities in 57 countries
35 million passenger and 214 thousand aircraft movements in 2006
8.94 million tourists arrivals

60 thousand vehicles pass through the causeway each day

The very elements that enable our success and prosperity have become key vulnerabilities.
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Singapore Port

200 shipping lines with links to 600 ports in 120 countries
140,000 vessels call annually
24 million containers (TEU) or 6% of global container throughput handled in 2006
While architected for deterrence and the defence of Singapore, the SAF has found itself deployed for various operations other than war.
Peace Support Operations

- Singapore is committed to the UN and its mission in maintaining international peace and security
- 1500 SAF peacekeepers sent to various missions since 1989
- Operating out of traditional areas
  - East Timor
  - Middle East: Iraq and Afghanistan
<table>
<thead>
<tr>
<th>UN Mission</th>
<th>Date</th>
<th>Role(s) in Mission</th>
</tr>
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<tr>
<td>UNTAG, Namibia</td>
<td>Oct to Nov 89</td>
<td>Election Supervisors</td>
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<tr>
<td>Ops Nightingale</td>
<td>Jan to Mar 91</td>
<td>Medical Team</td>
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<td>UNIKOM, Iraq-Kuwait</td>
<td>Apr 91 to Mar 03</td>
<td>Military Observers</td>
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<td>UNAVEM II, Angola</td>
<td>Jul 91 to Dec 92</td>
<td>Military Observers</td>
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<tr>
<td>UNTAC, Cambodia</td>
<td>May to Jun 93</td>
<td>Helicopter Detachment, Election Supervisors</td>
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<td>UMO NSA, South Africa</td>
<td>Apr to May 94</td>
<td>Election Supervisors</td>
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<tr>
<td>UN HQ - DPKO, New York</td>
<td>Nov 95 to Present</td>
<td>Appointments in DPKO</td>
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<tr>
<td>UNSCOM (UN Special Commission in Iraq)</td>
<td>Jun 96</td>
<td>Member of UN Special Commission Inspection Team</td>
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<td>MINUGUA, Guatemala</td>
<td>Feb to May 97</td>
<td>Medical Team</td>
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<td>UNSMA, Afghanistan</td>
<td>May 97 to May 98</td>
<td>UN Military Adviser</td>
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<td>International Force for East Timor (INTERFET)</td>
<td>20 Sept 99 to Feb 00</td>
<td>Medical Team, Military Liaison Teams</td>
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<tr>
<td>UN Transitional Administration in East Timor (UNTAET)</td>
<td>Feb 00 to May 02</td>
<td>UNTAETHQ Staff, Medical teams and Peacekeeping troops</td>
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<tr>
<td>UN Mission in Ethiopia and Eritrea (UNMEE)</td>
<td>May 00 to Jul 03</td>
<td>Military Observers</td>
</tr>
<tr>
<td>UN Mission of Support in East Timor (UNMISET)</td>
<td>May 02 to 22 Oct 03</td>
<td>Force Commander, UMISET HQ staff, Peacekeeping troops and Helicopter detachment</td>
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<td>3 SAF PKF HQ Staff remain till May 04</td>
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Timor Leste

**INTERFET**
- 4 men Liaison Team
- 3 x LST for 2 months each
- 1 x C130 for two weeks
- 26 personnel Medical Team
- 40 police personnel
- Cumulative total of 373 personnel involved

**UNTAET**
- 4 x PKO HQ staff,
- 3 x 61-men Platoon Task Force in Western Sector
- 9 x 21-men Medical Team
- 40 x Police Personnel

**UNMISET**
- May 02 onwards - Over 250 personnel
- Force Comdr UNMISET- PKF
- Staff Planners at PKF HQ

**Helicopter Detachment** - 4 x UHIH
- Infantry Company
OEF / OIF

• **Landing Ship Tank (LST)**
  - Monitor vessels to and from ports in Iraq
  - Compliant boarding operations
  - Health and comfort support to detained vessels
  - Platform support for helicopter operations
  - Guardship duties

• **KC-135**
  - Air-to-air refuelling

• **C-130**
  - Strategic lift for personnel and cargo
  - Aeromedevac
Indian Ocean Tsunami

- Field Hospital
- Liaison Element
- MATC

- Utapao
  - Liaison Element
  - 2 Chinooks
  - 2 Super Pumas

- Theatre HQ
  - 6 Chinooks
  - 6 C-130s
  - 2 Fokker-50s
  - Regional Coord Centre

- Banda Aceh
- 3 LST
- 2 Super Pumas
- Field Hospital
- Engineers
- Support Staff
Katrina (Sep 05)

- 4 RSAF Chinooks and 41 personnel deployed to Louisiana
- Flew more than 80 sorties, transported 800 evacuees and security personnel, more than 540 tonnes of equipment.
Yogyakarta Earthquake
(27 May 06)

• Medical detachment deployed
  – TNI Field Hospital in Plered, Bantul
  – Bantul District Hospital

• US$250,000 worth of humanitarian supplies
  (approx 24 tons)
  – 750 tentages
  – 4,200 blankets
  – 400 cot beds
  – 1,300 sleeping bags
  – Medical supplies
Provincial Reconstructive Team

Bamiyan, Afghanistan

• Part of New Zealand Reconstruction Team
• Set up of dental clinic & training of locals in dentistry and basic healthcare
• Bridge construction and repair work
Support for Homeland Security

I. Context and Scenario Development
II. Data Infrastructure
III. Pattern Monitoring and Assessment
IV. Pattern Detection and Evaluation
V. Collaboration Infrastructure

Maritime C3 and Coastal Surveillance
Police/SCDF C3
Explosive Testing
Crisis Information Management
Risk Assessment Horizon Scanning
Infrastructure Hardening

1990s
2000s
2010s
Maritime Security ..... is a complex multi-dimensional challenge
Half of the world’s oil and almost one-third of the world’s trade
Enabling Maritime Domain Awareness

Providing Decision Support

Enabling Inter-Agency & International Collaboration

Improving the Resilience of Critical National Infra & Systems

Countering the use and proliferation of WMD

Ensuring End-to-End Maritime Supply Chain Security

Technology support in ……

PROTECTION  CONTINGENCY RESPONSE

EARLY WARNING  PREVENTION

CONSEQUENCE MANAGEMENT
PROTECTION CONTINGENCY RESPONSE

Providing Decision Support

- Vulnerability and risk assessments of critical infrastructure
Enabling Maritime Domain Awareness

PROTECTION

CONTINGENCY RESPONSE

EARLY WARNING
PREVENTION

CONSEQUENCE MANAGEMENT

Video mosaic
Enabling Maritime Domain Awareness

PROTECTION  CONTINGENCY RESPONSE  CONSEQUENCE MANAGEMENT

Early Warning  Prevention  Consequence Management

Passive mode  Distance 750 m  Laser on  Distance 1.4 km

Active imaging
Harbour Craft Transponder System
Enabling Inter-Agency & International Collaboration

Common operating picture – port, coastguard & naval systems
Enabling Inter-Agency & International Collaboration

- Promote interoperability with international forces

CHANGI C2 CENTRE
Enhancing Resilience of Critical National Infra & Systems
Enhancing Resilience of Critical National Infra & Systems

Explosive effects testing
Countering the use and proliferation of WMD

- Container scanning
Ensuring End-to-End Maritime Supply Chain Security

Source: GSC
Risk Assessment & Horizon Scanning (RAHS)

Anticipating and preparing for disruptive events
International collaboration
FPDA (Five Power Defence Arrangements)
INDO-SIN Co-ordinated Patrols (ISCP)
Malacca Strait Patrols

- Malacca Strait Sea Patrols (MSSP)
- Eyes in the Sky (EiS)
Exercise Deep Sabre 05

- Singapore-hosted, first PSI exercise in Southeast Asia.

- Distinct Features:
  - Table Top Exercise (TTX)
  - Maritime Interdiction Operations
  - Combined Co-ordination Centre
  - Port Search Phase
  - Exercise Debrief Session
CMA JCTD with PACOM

Coastal Sensors

Situation Awareness

AIS

Lloyd’s Register Database
Technology Collaboration

- Expand capacity
- Reduce cost
- Enhance capability
- Reduce leadtime

Singapore
Our S&T Partners
Conclusion

• Singapore takes a systems level approach with technology as an enabler to meet the complex security challenges we face today
• Singapore participates in and seeks international collaboration to meet these challenges
Thank You