S&T Challenges in Transformation

PACOM Operational S&T Conference 2008

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Defence Science and Technology Agency

Agenda

- **Strategic Challenges**
- **3rd Generation SAF**
- **Research and Technology (R&T)**
- **Our Collaboration**

Strategic Challenges

- No hinterland
- No natural resources
- Vulnerable to changes in regional security environment

Straits of Malacca: An Attractive Terrorist Target

Strategic Significance

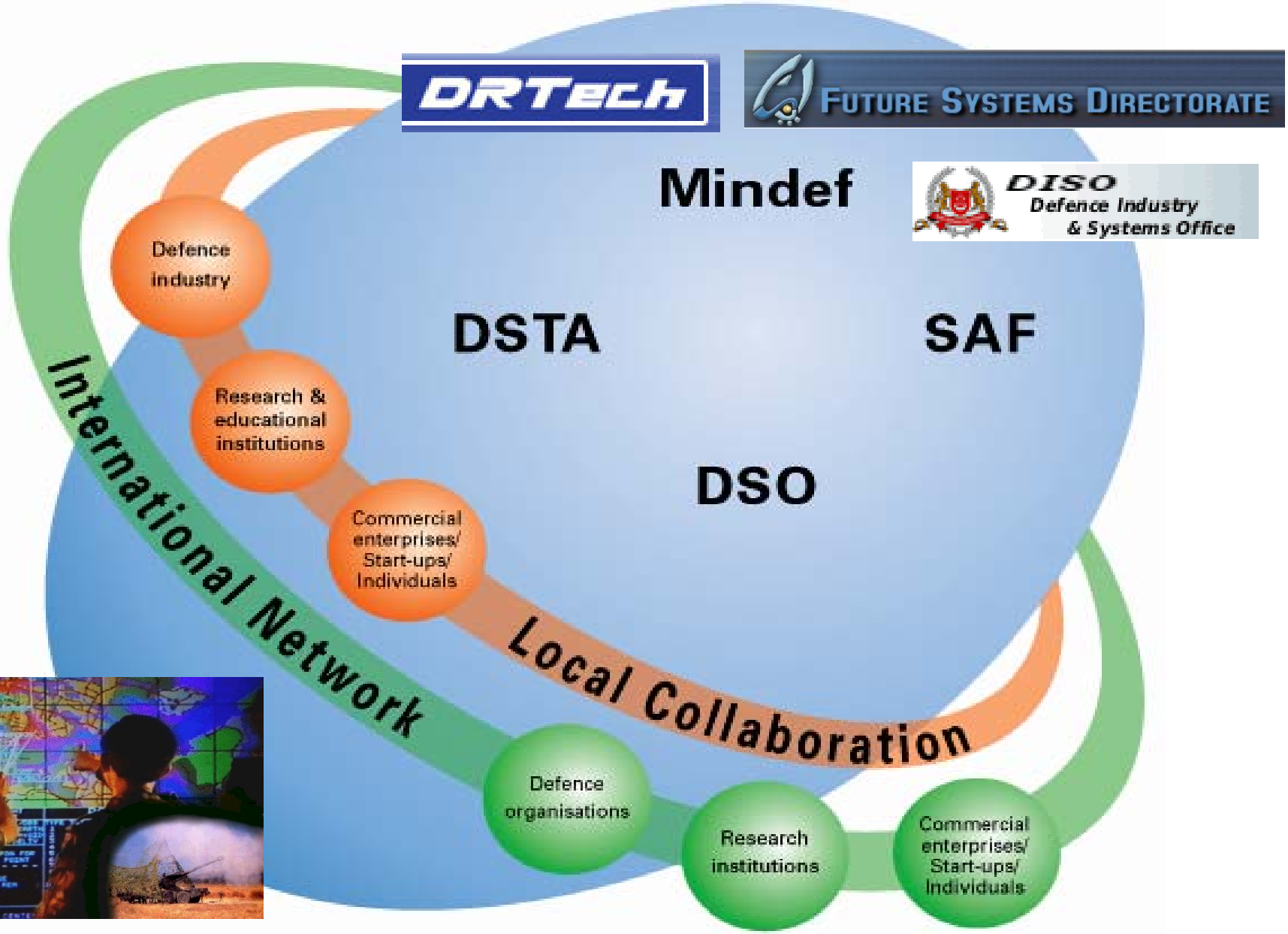
- A third of world trade
- Half of all oil shipments by sea
- Two-thirds of all LNG shipments
- 50,000 ships
- 90% of China's trade

To a small country like Singapore, the application of science and technology was even more critical. The country suffered from *a small space and tiny population*. Only the *technology edge* could overcome these natural constraints

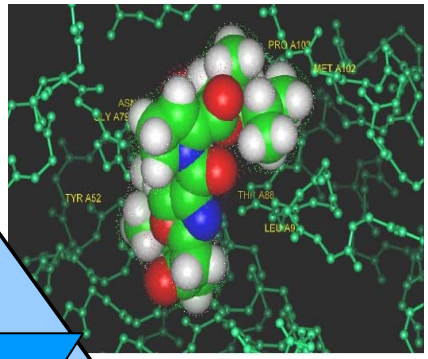
Source : "Creating the Technology Edge 1110", DSO National Laboratories, Singapore (1972-2002)

3rd GEN SAF

Defence Technology Ecosystem



Integrated Planning



RSAF Cap Devt

SAF Cap Devt

Army Cap Devt

RSN Cap Devt

JPTD

DISO

DRTech

FSD

DSTA

System Acq

Foreign Industry

Local Industry

DRD

R&D

DSO, TL, Univ

O/seas Partners

Defence Science & Technology Agency

Equipping and Technology support for defence and national security

- Integrative role
  - Enterprise System
  - Joint SAF Ammunition Command
  - Central Procurement System

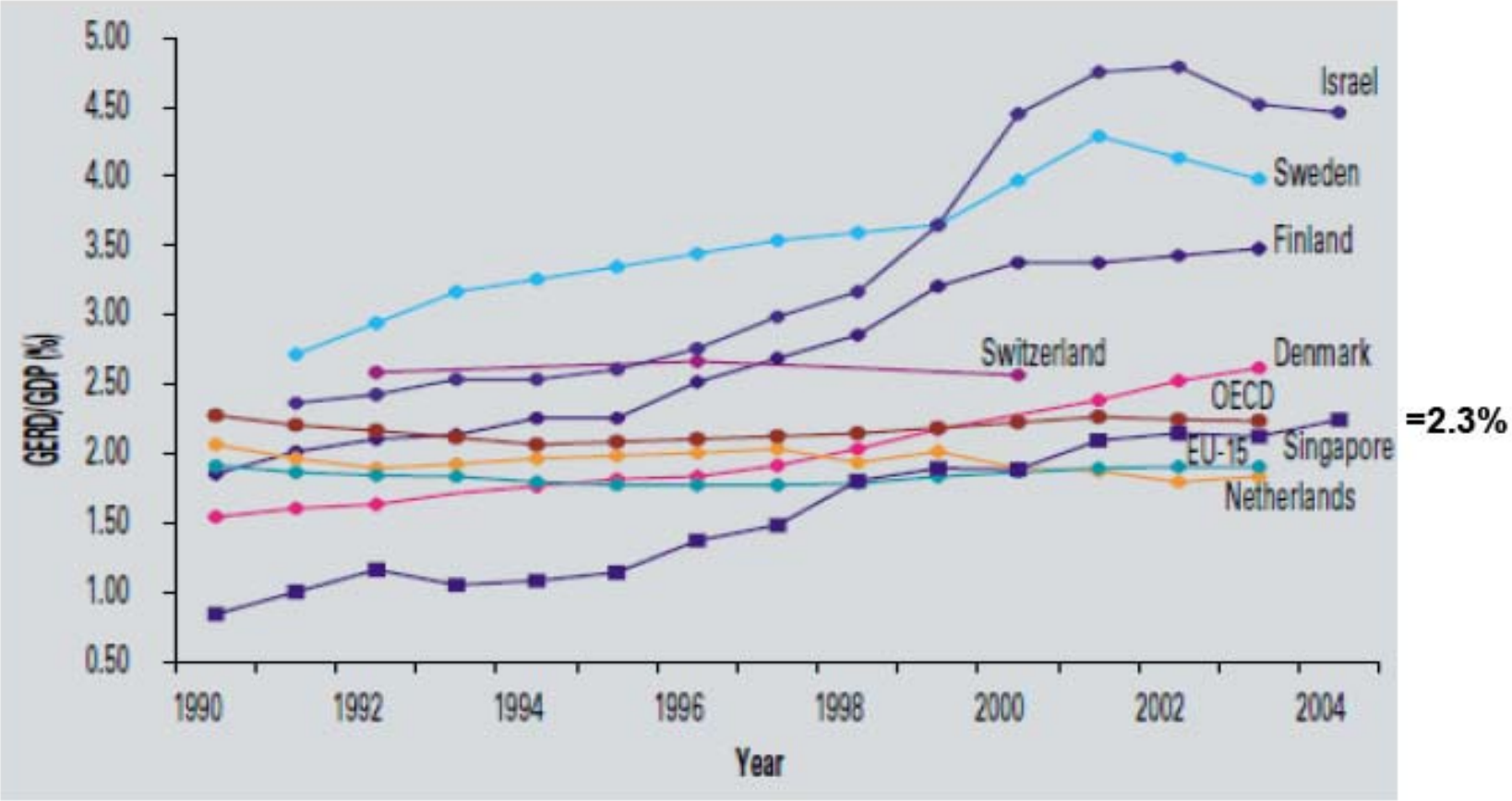
The Straits Times page 2 - Saturday 8 March 2008

ST PHOTO: MUGILAN RAJASEGERAN

COMPLEX WARREN: Two-lane wide roads, as seen here, at the SAF underground facility, link caverns where ammunition will be stored.

Singapore's ammo stored safely – underground

International Comparison of GERD (Gross Expenditure on R&D)



Source: OECD Main Science and Technology Indicators (2005)

NATIONAL R&D PROGRAMS

BIOMEDICAL SCIENCE (BMS)

INTERACTIVE DIGITAL MEDIA (IDM)

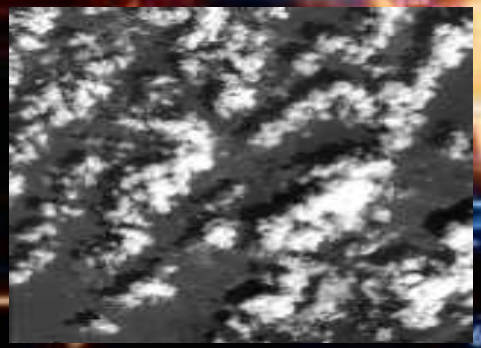
Prof. Seeram using a simple filtration set up to test the efficiency of nanofibre membranes at the nano-bioengineering Laboratory.

Technological advancements made possible the successful development of NEWater. Today, Singapore has three NEWater Factories at Bedok (above), Kranji and Seletar, and the fourth and largest plant at Ulu Pandan will be completed in early 2007.

ENVIRONMENTAL & WATER TECHNOLOGIES (EWT)

R&T

- Decisive Edge
  - Unique Requirements
    - Capability Sustenance

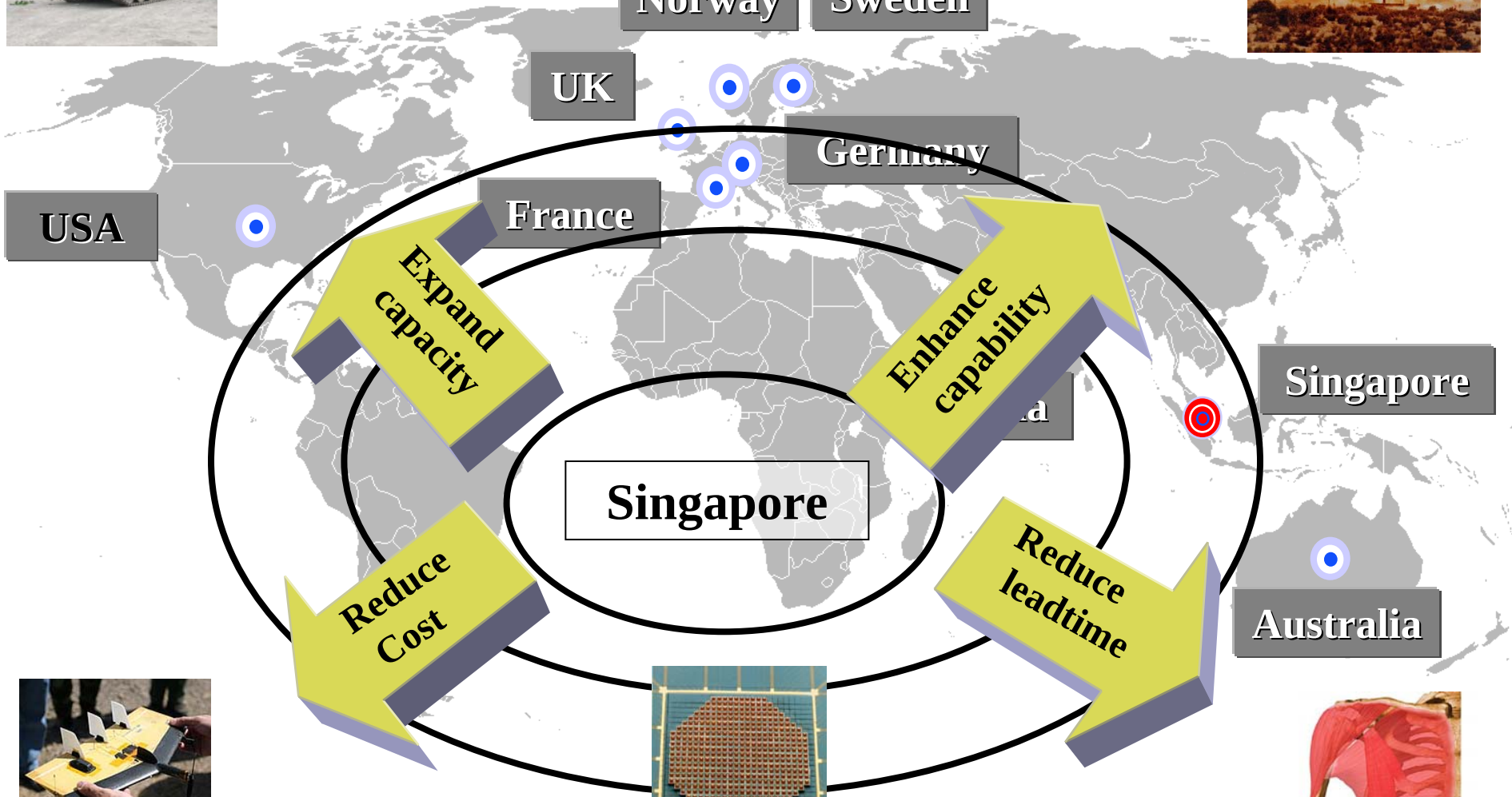


DRTech

Defence Research & Technology

Ops - Tech Synergy

Technology Collaboration



Conclusion

- S&T critical for Singapore.
- Integration and networked systems for greater synergy.
- Collaboration to overcome resource constraints and expand capacity of ideas and innovation.

Thank you.

- Knowledge
- Trust
- Connectivity