Transforming Fire and Rescue Response Through Innovation

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Commissioner
Singapore Civil Defence Force

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Scope

- Singapore’s Profile
- SCDF Structure and Operational Statistics
- Strategic Challenges and Driving Forces
- Transformation Vision and Framework
- Transforming Fire and Rescue Response
  - Leveraging Technology and Innovation
  - Robust Fire Safety Regime
  - Enabled and Empowered Community
Singapore’s Profile

**Densely Populated**
- 719.9 km²
- 5.6 million population

**Ageing Population**
- 1 : 8 Today
- 1 : 4 2030

Source: Department of Statistics. Projections assume TFR of 1.2 and current immigration rates.
Singapore’s Profile

- High Rise Residential Buildings
- Land Checkpoints
- Singapore Changi Airport
- Industrial and Petroleum Industries
- Central Business District
Singapore Civil Defence Force

- **HQ SCDF**
  - 4 SCDF Land Divisions
  - 1 Marine Command
  - 2 Training Institutions

- **4 SCDF Land Divisions**
  - 19 Fire Stations
  - 28 Fire Posts

- **1 Marine Command**
  - 2 Fire Stations
  - 1 Fire Post

- **2 Training Institutions**

- **2,500 Uniformed Officer**
- **280 Civilian Staff**
- **3,100 NS Full-time**
- **16,700 Active ORNSmen**
Operations Statistics

Fire

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Rescue

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HazMat

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SCDF’s Strategic Challenges

**Volatility**
Myriad of response scenarios

**Uncertainty**
Evolving Operating Environment (Threat of terrorism)

**Complex**
Pace of technological Advancements

**Ambiguous**
High Potential for mis-reading conditions
SCDF’s Driving Forces

1. Increasing Workload

2. Manpower Constraints

3. Higher Public Expectations

4. Ageing Population
SCDF Transformation Vision 2025

2025
A NATION OF LIFESÄVERS

Vision 2023 - “A Nation Of Lifesavers”
A joint commitment to build a more connected and resilient Singapore.

Building A Strong SCDF Through Training Transformations
Enhancing skills and capabilities through continuous learning and development.

Technology As A Force-Multiplying For Higher Operational Efficiency
Embracing innovation to enhance efficiency, effectiveness, and readiness.

2025
A NATION OF LIFESÄVERS

Legend
Enhancing Competencies
Enhancing Capabilities
Building

A NATION OF LIFESAVERS

Transforming Emergency Response
Institutionalise Safety & Public Protection
Enable & Empower The Community

Embrace Operations Technology & Innovation
Inculcate High Performance

Vision
Strategic Outcomes
Enablers
Leveraging Technology and Innovation

Robust Fire Safety Regime

Enabled and Empowered Community

Transforming Fire and Rescue Response

SCDF
The Life Saving Force

UNCLASSIFIED
Leveraging Technology and Innovation

1. Data Analytics
   - Dynamic Resource Optimisation (DRO)
   - SCDF Business Intelligence Tool (S-Bit)

2. IT Systems / Infrastructure
   - Integrated Management, Communications, Command & Control (IM3C) System
   - Advanced Medical Protocol System (AMPS)
Leveraging Technology and Innovation

3 New Concept of Operations

• Tiered EMS Response
• Enhanced Triaging
• Enhanced Marine Response
• Enhanced HazMat Response
Leveraging Technology and Innovation

4 Hardware / Equipment

• FROST
• Fire and Medical Vehicle (FMV)
• HazMat Control Vehicle (HCV)
• SkyCam
Leveraging Technology and Innovation

4 Hardware / Equipment

- LF6G & Red Rhino Robot (3R)
- DART Rescue Vehicle (DRV)
- Exoskeleton
- Life Detection Robot

Source: The Straits Times, 18 April 2018
Leveraging Technology and Innovation

5 Training Facilities and Simulations

- New Field Training Area (FTA)
  - External Training Simulators
  - Mixed Use Premises
  - Compartment Fire Behaviour Training
  - The Furnace
  - Mass Display Area
  - Tunnel
  - Mock Fire Station
  - EXCEL
  - The Enterprise
  - Mixed Use (Transport Hub, Commercial & Residential)
5 Training Facilities and Simulations

- Fire Research Centre
- EXCEL @ Civil Defence Academy

Tunnel Fire Research Compartment Fire Behaviour Training (CFBT)

EXCEL – Emergency Responders Fitness Conditioning & Enhancement Lab
Leveraging Technology and Innovation

6 Streamline Processes with IoT

• FISSION (Fire Safety & Shelter Information Online)
• Fully-automated checks on the submitted building plans
• Traffic Priority System
• Community First Response

Image courtesy of Aedas

myResponder App
Available on the App Store
Available on Google Play

UNCLASSIFIED
Robust Fire Safety Regime

- Evidence based approach
- Review regularly
- Collaborate with building industry, stakeholders and regulatory bodies

2018 Fire Code

Digitising Fire Code
- Easily accessible
- Interactive
- Easy to cross reference

Incorporating New Tech and Regulations
1. Video Image Fire Detection System (VIFDS)
2. Home Fire Alarm Device (HFAD)
3. Adoption of New and Green Tech
Robust Fire Safety Regime

- Timer-based Water Release System
- Fire Modelling Simulation Studies (Analytics)
- Home Fire Alarm Device (HFAD)
- Adoption of New and Green Tech Building Materials
- Enhanced Hazardous Transport Vehicle Tracking System
- Community-based enforcement approach to safeguard fire safety standards
- Video Image Fire Detection System (VIFDS)
- CERT Standards Extended to Public & Industrial Buildings
- Integration with Smart Nation Framework
Enabling and Empowering the Community To Be Community First Responders

**EMPOWER THE ACTIVE RESPONDER**
- Trained in Life Saving Skills
- Commits volunteer hours and serves Community as a dedicated responder

**ENABLE THE BYSTANDER RESPONDER**
- Trained in Life Saving Skills
- Involves in the chain of saving lives but does not commit volunteer hours
- Examples: Calls 995 & retrieve AED

**ENGAGE THE CONCERNED CITIZEN**
- Basic EP Knowledge awareness
- Knows how to help and get out of harm’s way in times of emergency
- Examples: Self evacuation & use mySCDF app to take snap shots
Enabling and Empowering the Community To Be

Community First Responders

Junior CD Lionhearts
National CD Cadet Corps
CD Lionhearts
CD Auxiliary Unit

Preschool Resource Kit
Primary School Curriculum
Emergency Preparedness (EP) Days

Public Education Programs

Future 7-Storey EP Centre

Future-Ready

Community Emergency Preparedness Programme (CEPP) – Training + Online

1. What do you do when a fire breaks out?

When you discover a fire:

- Do not panic.
- Alert others to the fire by shouting.
- Evacuate the room/area and get everyone out of the premises without endangering yourself.
- If possible, close the door of the affected room to contain the fire.
- Call 999 for the SCDF.
- Turn off the gas knob if you can reach them.
- Activate the fire alarm at the nearest manual call point.
- Evacuate the building in an orderly manner via the stairs; do not use the lift.
- Do not return to the building until the authorities announce that it is safe to do so.
Enabling and Empowering the Community To Be Community First Responders

Save-A-Life Initiative

**Hardware**
- Enhance Community First Response
- Install AEDs in residential estates
- AEDs on wheels
  - Placed in taxis
  - 1st in Southeast Asia

**Heart-ware**
- Basic Training
  - Triangle of Life Training
- Dispatcher-Assisted First Responder (DARE) Program

**Software**
- Geo-location Technology
- Alerts volunteers to nearby cardiac arrest cases & nearest available AED
Enabling and Empowering the Community To Be
Community First Responders

MyResponder App

92,327 Downloads
30,893 Active Responders
15,615 Activations

*As at 31 July 2018
Enabling and Empowering the Community To Be

Community First Responders

Expanding myResponder App usage

• Enable Community First Responders (CFRs) to attend to rubbish chute and bin fires

Encouraging Stats

• MOPs willing to assist in more than 30% of the cases
• Successfully extinguished 85% of the cases they accepted
• Accounted for 25% of all rubbish chute and bin fires.

Help fight fires with SCDF app alert

Kimberley Chia

Individuals can now play a part in fighting small fires in their vicinity, with a new function in myResponder, the SCDF’s mobile app. It has been upgraded for registered users to enable them to extinguish rubbish chute and bin fires.

A new feature has been added to enable Community First Responders (CFRs) to attend to rubbish chute and bin fires using the myResponder application.

The SCDF said they have been receiving an increasing number of requests to attend such fires. The new feature will allow users to identify any fire or rubbish chute by entering its location on the app.

Kian Kiat, a 42-year-old Ministry of Law officer, said that he used the app to extinguish a fire in a bin outside his building.

The SCDF said that they have started seeing more rubbish chute fires, particularly among new residential developments.

Source: The Straits Times, 18 April 2018
Future Ready To Safeguard Our Nation