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Preface

Defending Singapore in the 21st Century outlines Singapore's defence policies and charts the strategies Singapore will take to ensure its security in the new millennium.

The 21st Century will bring with it new challenges for the defence of Singapore. The end of the Cold War did not bring about an end to conflicts. The strategic landscape in the 21st Century will remain dynamic and uncertain, as countries continue to adjust to the strategic realities of a post-Cold War world. Tensions and conflicts may erupt over existing as well as new disputes. At the same time, the security and well-being of nations will become even more closely intertwined in a globalised world. A small state like Singapore is vulnerable to the vagaries of the international environment. We will face a more diverse range of security challenges, as we plug ourselves into the global economy.

Singapore will continue to pursue diplomacy and invest in a strong defence to safeguard its survival and success into the 21st Century. The Ministry of Defence and the Singapore Armed Forces will further strengthen Singapore's defence capability to ensure that Singapore is well positioned to meet any future challenges. But the task of defending the country cannot rest solely on a corps of well-trained and well-equipped soldiers. There must be unstinting support from each and every citizen. *"Defending Singapore in the 21st Century"* thus serves as a reminder to Singaporeans to continue to be steadfast in building a strong and credible defence capability. It also aims to share with Singaporeans the rationale behind our country's defence policies and how the government will shape defence strategies in a fluid geopolitical environment.

Defending Singapore in the 21st Century serves another purpose. The Asian economic crisis at the end of the last century has driven home the importance of closer international co-operation to deal with common challenges. As it is in economics, so it should be in security. Singapore firmly believes that stronger international co-operation is needed to tackle the wide-ranging and complex security challenges that the international community will face in the 21st century. By making transparent its own defence posture, Singapore hopes to contribute to the process of confidence and trust building among members of the international community. *Defending Singapore in the 21st Century* serves as an affirmation to the rest of the world that Singapore is committed to play its part to contribute to global peace and stability.

Dr Tony Tan Keng Yam
Minister for Defence

Defence Challenges in the 21st Century

Protecting Our Future

From a small fishing village, Singapore has developed into the thriving global city-state of today. In the 21st Century, we hope to build for our children and ourselves a First World Economy and a World-Class Home. This vision can only be realised if Singapore is safe and secure, in a region that is peaceful and stable.

A World-Class Home

"We have to transform ourselves – from a regional economy to a first world economy… We must build a world-class home for ourselves, where Singaporeans want to stay, and talent from around the world want to come."

Prime Minister **Goh Chok Tong**
at the National Day Rally, 1999

Security therefore remains a key national priority in the 21st Century. Our experiences in the past and events in the region are reminders that our security environment can and will change, sometimes suddenly. Our physical and resource constraints as a small country also remind us of our dependence on trade and communication with the outside world, and our vulnerability to external events and changes.

Singapore may be small, but we have developed a distinct identity, values and way of life. No matter where we go and what we do, this is a place Singaporeans want to come back to. This is the place we call home. Our investment in a defence capability is a small premium to pay to safeguard our home and all that we have achieved.

"In the economic sphere if things fall apart, you will still have opportunities to rebuild, and to prosper again. We will not get a second chance if we cannot defend ourselves. A security threat could mean the loss of lives and the end of Singapore."

Dr Tony Tan Keng Yam,
Deputy Prime Minister & Minister for Defence,
Committee of Supply Debate, 1998.

Our Interests in an Interdependent World

In the 21st Century, Singapore's peace and prosperity will be more inextricably linked to that of the region. A stable and prosperous Singapore contributes to the economy of the region. Conversely, an unstable regional environment will not only set back our efforts to be a regional and global hub, but will also drive away investors.

The Asian economic crisis has demonstrated how closely intertwined the interests of nations have become in a "borderless" world. A small and open country like Singapore is especially susceptible to unpredictable shifts in the international environment. This vulnerability will increase as we become more integrated with the global economy. What happens in another part of the world can have immediate and great spillover effects on our economy and security. But we cannot turn back from globalisation. We depend on the world economy for a living. We will have to work more actively with others to safeguard peace and stability in the region and beyond, to promote a peaceful environment conducive to socio-economic development.

Future Challenges

In the 21st Century, globalisation and information technology will dramatically change the societies and economies of all nations, big and small. The security environment will change in tandem, as states adjust to the new competitions and threats of the post-Cold War era and the security challenges that arise from them.

An Uncertain Security Landscape

In the Asia-Pacific region, the triangular relationship among the United States, China and Japan will continue to be the key factor determining the regional security climate. How this relationship will evolve is uncertain.

The US presence in the region has contributed significantly to peace and stability in Southeast Asia. However, the balance of power will shift as China gains economic strength. There will be a growing need for these two countries and Japan to manage their relations with one another and with the rest of the region more sensitively. Regional security and stability require a stable triangular relationship among the US, China and Japan, with all three powers focused on the larger goals of regional and international peace.

It may take some time before the Asia-Pacific region recovers fully from the economic crisis. Full economic recovery in some parts of the region could be derailed by internal instability brought about by political and socio-economic difficulties. The economic crisis has shown clearly the strong linkage between economics and security. There can be no security without economic stability, just as there can be no sustained economic development without security.

The end of the Cold War may have reduced the risk of a superpower conflict, but regional and sub-regional conflicts remain a real possibility.

Without the ideological divides of the Cold War, old disputes and separatist forces have resurfaced. Intra-state conflicts along ethnic and religious lines have broken out with horrific consequences, as in Bosnia and Rwanda. And then there are the upheavals and unrest that come with political transitions, such as in Cambodia and East Timor. The impact of intra-state political and social unrest is not always contained within national borders; they sometimes spill over to affect the security of neighbouring states.

There are also many unresolved territorial and boundary issues in the Asia-Pacific region that could lead to conflict. The situation in the Korean Peninsula continues to be a source of concern. Another potential area of conflict is the Spratly Islands, which are claimed wholly or in part by six parties. Cross-Taiwan Straits relations have not settled down, and continue to be a major impediment to any significant improvement in US-China relations. Any one of these issues, if not managed well, could escalate and have adverse consequences for regional stability.

Other types of conflicts can also emerge in the new century. For instance, the competition for resources is likely to grow sharper as Asia-Pacific economic growth regains momentum. Resource scarcities could trigger future conflicts over access to or ownership of vital resources such as oil, energy, water and maritime resources.

The growing proliferation of weapons of mass destruction (WMD) and their delivery systems also poses a grave security threat. The spread of nuclear, biological and chemical weapons has an adverse impact on the non-proliferation regime and could unleash an arms race. If they become more widely available, the risk that they may be used in unstable, tension-ridden areas will increase.

Unconventional threats in the form of terrorist acts and subversion will continue to be a potential danger. Some of these threats may be targeted at third countries or parties, but the SAF may be called upon to deal with them because they take place in Singapore or Singaporean assets are involved. The SAF may also have to deal with low intensity conflicts and attacks aimed at disrupting our social or economic life, or aimed at intimidating us and destroying our national will. Such threats can come in different forms – physical attack, chemical sabotage and even cyber-attacks aimed at our critical economic and social infrastructures.

Cyber-Attack: Chernobyl Virus

The destructive Chernobyl or CIH virus – which first struck on 26 April 1998, the 12th anniversary of the Chernobyl nuclear disaster – tries to erase computer's hard drive and write gibberish into its system settings to prevent the machine from being restarted.

The virus soon infected thousands of computers in the US, Asia, Europe and the Middle East. Turkey and South Korea each reported 300,000 computers infected with Chernobyl.

Terrorist Attack: SQ117

On 26 Mar 1991, Singapore Airlines flight SQ 117 took off from Subang Airport in Kuala Lumpur with 129 passengers and crew on board. En route to Singapore, four passengers claiming to be members of the Pakistan People's Party (PPP) took control of the plane, demanding the release of PPP leader Benazir Bhutto's husband and other PPP members detained in Pakistani jails.

A crisis team was immediately activated. The aeroplane landed at Singapore's Changi Airport. The next day, the hijackers issued a five-minute deadline, after which they would harm the passengers. They also threatened to kill one passenger every ten minutes if their demands were not met.

At three minutes to the deadline, a team of SAF Commandos was given the order to storm the plane. The team killed the four hijackers and freed all the passengers and crew members unharmed.

Changing Nature of Warfare

We are witnessing a revolution in military affairs or RMA. Previous revolutions have included the introduction of tanks and aircraft, and nuclear weapons. Advances in weapons technology that are equipped with electronic information systems drive the current revolution. The impact of new technology is seen, for instance, in the dramatic improvements in sensor technology and information systems that are enabling military forces to achieve a significantly higher level of "battlespace awareness" than before. This means that they can see the battlefield situation much better, arrive at more accurate assessments of friendly and enemy operations, and make better informed decisions in a timely manner.

At the same time, precision strike technologies are enabling military forces to strike where and when it matters, with much more deadly accuracy, from greater distances than ever before. The world saw how effective these weapons are in the dramatic television images of US smart bombs and missiles hitting Iraqi targets with pinpoint accuracy during the Gulf War.

The revolution in military affairs will change the nature of warfare. Superior numbers in platforms such as tanks, new planes and ships will become less of an advantage unless all these platforms can be integrated into a unified, flexible and effective fighting system using advanced information technologies. At the same time, the ever-increasing reliance on information technology means that protecting one's own information systems and disrupting the enemy's will become a major aspect of warfare in the Information Age.

In this rapidly evolving battlefield, the challenge for the SAF is not simply to continue to keep pace with rapid technological changes. To stay ahead, we need to keep on building up and maintaining a technological capability. Then we will be able to buy what we need, adapt it to suit our unique requirements and, where necessary, build from scratch. The SAF must also have quality people able to master the new technologies and weapon systems, and to use them to fight smart. The SAF can draw upon the strengths of the rising education profile of our National Servicemen and position itself to exploit these new developments in warfare.

Resource Constraints

The continuing challenge Singapore faces as a small and resource-scarce nation is this: How can we translate our limited resources into an effective defence capability? This is a challenge for which new and creative solutions need to be found continuously.

We can expect our future economic and social development to place a greater strain on the resources that can be channelled to enhance our defence efforts. For instance, economic development and population growth will increase the demand for the limited amount of land that can be committed to SAF training. As more industrial complexes, offices, homes and recreational facilities are built, areas suitable for SAF training and military exercises will diminish. We will have to make better use of SAF training areas to train our personnel, keep them fighting fit and hone their fighting skills. We will also have to continue to look for new training areas overseas and use technology to fulfil a growing variety of training requirements. Equally challenging is the problem of manpower. Our small population will limit the pool of manpower available to our armed forces, defence science establishments and defence industries. We shall have to find innovative ways around these constraints, so that we can effectively enhance our defence capabilities with our limited resources.

In a nutshell, we will have to deal with a more difficult environment in the 21st Century. As a sovereign nation, we are responsible for our own security and defence. We have to plan ahead to meet the new challenges that may come our way, and be flexible and nimble so as to take full advantage of new opportunities to further enhance the effectiveness of our defences.

Singapore's Defence Policy

The aim of our defence policy is to ensure that Singapore enjoys peace and stability, and that Singapore's sovereignty and territorial integrity are protected. We also want to do our part to contribute to regional peace and security. Diplomacy and deterrence form the twin pillars of our defence policy. We develop and maintain good relations with other countries through diplomacy. These diplomatic efforts are wide-ranging and span many fields, not just in defence. At the same time, we try to deter threats from emerging by contributing to regional resilience and through our concept of Total Defence.

Total Defence

In a complex security environment, the SAF alone – while crucial to the defence of Singapore – is not enough. What will ensure Singapore's survival is an all-round deterrence effort in which every citizen plays a part.

The concept of Total Defence aims to achieve a seamless and integrated all-round capability to defend our national interests. Consisting of five elements – Psychological Defence, Social Defence, Economic Defence, Civil Defence and Military Defence – it unites and commits all sectors of society to the defence of Singapore.

Over the years, steps have been taken to strengthen Total Defence. There are public emergency exercises, training of civil defence volunteers, and setting up of civil defence grassroots organisations. A more recent initiative was the National Education programme. Launched in September 1996, National Education aims to enhance the commitment of Singaporeans to our nation, i.e., the nation's "heartware" and social cohesion, so that Singaporeans stand united amidst the diversity of a multi-cultural and multi-ethnic nation.

An emergency water-rationing exercise

Our defence policy has served us well. In the 21st Century, diplomacy and deterrence will continue to be the fundamental tenets of our defence policy. But we will have to define our security in wider terms to include not only traditional security challenges but also new ones that may arise to threaten our interests in the globalised era. The SAF will have to develop a broader range of capabilities and prepare itself to work with others to tackle some of these challenges. This means that the SAF will have to enhance its efforts in diplomacy and deterrence.

Our two key thrusts in the coming years will be to:

- Strengthen dialogue, confidence-building and co-operation in the region and beyond. Increasingly, countries in the region recognise the value of efforts to promote confidence-building, co-operation and dialogue on issues of common security concern. Through the years, the SAF has developed extensive and expanding links with armed forces in the region and beyond. The SAF can help promote greater understanding and trust among regional and extra-regional armed forces by leveraging on these links to help strengthen bilateral and multilateral defence co-operation and dialogue, and participating in confidence-building efforts.

- Strengthen Total Defence. In the new security environment, Singapore could face a diverse range of new and unconventional threats. To tackle these challenges, we will need to strengthen all five components of Total Defence. The SAF will maintain its conventional capabilities to ensure that the military component of Total Defence remains strong. At the same time, it will work more closely with other government agencies to develop an effective defence against new security challenges, especially the non-traditional threats that may arise.

Singapore has been able to overcome past challenges because Singaporeans are not afraid to adapt and change. Likewise, we must also adapt our defence policy to the changes in the security environment. This will ensure that it continues to be relevant in the 21st Century and that our future will be protected.

"The 21st Century will bring new uncertainties and challenges. Asia is in a historic period of change. Peace, stability and economic growth are not assured…… Whether Singapore can be a good home will depend on our will to overcome constraints and succeed."

Prime Minister **Goh Chok Tong** at the National Day Rally, 1996

Promoting Peace and Stability

The security challenges in the 21st Century will become more diverse and multi-faceted, and affect more countries and be transnational in nature. Greater regional and global co-operation will be vital to meet the new challenges. This includes strengthening bilateral relationships and multilateral arrangements through dialogue, confidence-building activities and co-operation among countries.

A stable international environment is necessary for Singapore's future security and progress, and we will have to play our part to build a peaceful regional and global order in the new century. The SAF will do more in the area of defence diplomacy. It will develop the capability to inter-operate with friendly forces and work with other armed forces to strengthen multilateral defence co-operation.

Bilateral Relations

Singapore attaches great importance to the development of bilateral defence relations with friendly countries. As a result of our ongoing efforts to foster new defence relationships and strengthen existing ones, the SAF today enjoys close bilateral ties with its counterparts in many parts of the world.

To strengthen defence ties, the SAF has been developing and conducting a wide range of bilateral interactions and activities with a number of armed forces. Such interactions and activities include joint exercises and training programmes, the exchange of high level visits, exchanges of views and seminars, and cross-attachments and cross-attendance of military courses.

The opening of Ex Cope Tiger, an exercise between the RSAF, USAF and the Royal Thai Air Force

RSAF and Royal Brunei Air Force troops in Ex Air Guard

Bilateral exercises such as the SAF-TNI SAFKAR INDOPURA help forge friendships

The SAF enjoys close and friendly ties with many of the armed forces of ASEAN countries. These bilateral relationships have been steadily growing in scope and depth. For the future, it will remain a priority for Singapore to develop and strengthen its defence ties with all ASEAN members to realise the common vision of a cohesive and strong ASEAN.

Singapore has also developed good bilateral defence relations with many other countries in the wider Asia-Pacific region, including the US, China, Japan, South Korea, Australia, New Zealand, India and Bangladesh.

US Defence Secretary Mr William Cohen calls on Deputy Prime Minister and Defence Minister Dr Tony Tan

Beyond the Asia-Pacific, the SAF enjoys warm and friendly ties with armed forces in Europe, Africa, and the Middle East. The interactions with armed forces around the globe allow the SAF to benchmark itself against highly professional counterparts.

The SAF will continue to enhance its inter-operability with other defence forces, in various areas of professional interest. Singapore's efforts to strengthen bilateral defence ties and security co-operation will help to consolidate the foundation for an Asia-Pacific community enjoying prosperity and peace in the 21st Century.

The Growing Web of Bilateral Relationships

The US-Singapore defence relationship is an important one. Exercises with the US Armed Forces have been steadily growing in scope and complexity, with more US assets being deployed for the bilateral exercises. In 1998, the Singapore and US governments signed an Addendum to the 1990 Memorandum of Understanding which will allow US Navy ships and aircraft carriers to berth at Changi Naval Base when the base is ready.

General Chi Haotian, Chinese Defence Minister and Vice Chairman of China Central Military Commission, and State Councillor, calls on Deputy Prime Minister and Defence Minister Dr Tony Tan

The SAF has also developed new ties. Defence relations with the People's Republic of China were established in 1997/98 with an exchange of visits by the Vice-Chairman of the Central Military Commission and PRC Defence Minister General Chi Haotian and Deputy Prime Minister and Minister for Defence Dr Tony Tan. Singapore-Japan defence relations were enhanced with the inauguration of policy talks between the Japan Defence Agency and MINDEF in 1997.

New overseas training programmes have been initiated. In 1998, a Status of Forces Agreement was signed to cover SAF training in South Africa. This paved the way for the conduct of the SAF's first Unmanned Aerial Vehicles deployment in late 1998.

Singapore also concluded a Defence Co-operation and Status of Forces Agreement with France in 1998. The RSAF now has an Advanced Jet Training unit in Cazaux, and the first biennial exercise with the French Air Force was conducted in Singapore in 1998.

French Chief of Army Staff, General Phillipe Mercier, reviews the SAF Guard-of-Honour

Multilateral Defence Relations

FPDA members conduct regular air defence exercises as part of the Integrated Air Defence System

However, bilateral arrangements alone are not adequate to enhance regional peace. Just as the Asian financial crisis highlighted the need for international co-operation to enhance stability in the global financial system, greater security co-operation is vital for regional and global peace and stability in the 21st Century. Multilateral arrangements are likely to become more important, as security challenges become more diverse and transborder in nature. The promotion of security co-operation will strengthen regional resilience to deal with these new challenges.

At the multilateral level we welcome the strengthening of existing multilateral security arrangements, such as the Five Power Defence Arrangements (FPDA). Singapore is fully committed to the FPDA, which is the longest standing multilateral arrangement in the region. This arrangement provides for the defence of Malaysia and Singapore, which is indivisible. Since its formation in 1971, the FPDA has become a unique component of the region's security architecture and contributes to regional peace and stability. Its importance and relevance remain undiminished despite the many changes in the geopolitical landscape over the years.

Photo: Associated Press

ARF in session

Singapore will also continue to play its part in strengthening the ASEAN Regional Forum (ARF) as a vehicle to promote regional peace and stability. In the future we hope to see the ARF play a bigger role in the prevention of new disputes and conflicts in the region through promoting confidence-building measures. Such measures include the promotion of mutual understanding and adherence to international norms of behaviour and to international treaty regimes, such as those prohibiting the acquisition of Weapons of Mass Destruction and governing safe passage through international straits and seas, like the United Nations Convention on the Law of the Sea (UNCLOS). The ARF could also play an important role in fostering multilateral responses to transnational security challenges such as terrorism and piracy.

In addition, Singapore will play its part to foster and support other arrangements to enhance regional peace and stability. In particular, multilateral security dialogue and co-operation among defence establishments in the region remain relatively undeveloped. Singapore believes that regional defence co-operation, in areas such as maritime security, disaster relief, humanitarian assistance and transnational problems, will directly contribute to the enhancement of regional peace and security. Military co-operation and dialogue in these areas will also contribute to conflict prevention by enhancing trust and confidence among regional armed forces.

In the years ahead, the SAF will aim to build up its capability to contribute to fostering multilateral defence co-operation. It will partner regional armed forces to develop more channels of dialogue, exercises and other forms of co-operation among Asia-Pacific defence professionals in areas of common professional and security concern.

The SAF's Recent Multilateral Initiatives

The SAF is committed to working with other armed forces to realise the vision of an Asia-Pacific Century characterised by stability and prosperity. As part of the process to position itself for the new century, the SAF will enhance its capabilities to play a role in the development of multilateral programmes designed to promote understanding and trust among regional forces. All three Services of the SAF have actively supported and participated in activities directed at raising multilateral defence co-operation at the professional level.

Since 1988, the RSN has been an active participant of the Western Pacific Naval Symposium (WPNS). It hosted the 8th WPNS Workshop in July 1999 in Singapore. The RSN has also regularly participated in various multilateral exercises, such as the Meeting of the Eastern Littoral Navies, and the multilateral Search and Rescue Exercise with the navies of Sri Lanka, Bangladesh, Myanmar, Indonesia and India. In July 1999, the RSN hosted a trilateral Mine Countermeasure Exercise in which the Australian and US navies participated, and the navies of Indonesia, Japan, Malaysia, the Philippines, and Thailand sent observers.

In September 1999, Singapore and the US co-hosted the inaugural Pacific Armies Chiefs Conference in Singapore. This provided a forum for army chiefs of the region, spanning India in the west to the US in the east, to discuss professional matters. In the same month, Singapore also hosted the 23rd Pacific Armies Management Seminar, a forum started in 1978 for senior ground force officers in the Asia-Pacific and Indian Ocean states to meet and discuss professional military subjects.

In February 2000, the RSAF hosted the Millennium Air Power Conference in Singapore. The conference provided a platform for air force chiefs from around the world to discuss developments in air power concepts and technology in this new millennium.

Singapore and the US co-host the 1st PACC

Contributing to International Peace

Singapore's well-being and survival are best served by a world order based on the principles of co-operation and consultation, rather than the use of force. We therefore regard the United Nations as a key institution for maintaining the international law and order necessary for a global climate of stability. The SAF will continue our efforts to support the United Nations' work.

An SAF medical orderly attending to a baby after the 1990 Phillippines earthquake

Singapore's efforts to strengthen regional confidence and co-operation are a part of our contribution to the UN's efforts in dispute and conflict prevention worldwide. For instance, the SAF's efforts to promote naval co-operation will complement international instruments such as UNCLOS in ensuring a secure maritime environment critical for the safe passage of international shipping and global trade in regional waters.

Singapore first participated in UN peacekeeping operations in 1989 and has contributed small contingents over the years. Over a decade, we have contributed a cumulative total of over 800 personnel to UN missions, including peacekeeping, peacemaking and arms inspection missions. Although the SAF is constrained by being a largely conscript armed forces with a small pool of regulars, it will continue to play its part by supporting peacekeeping operations to the best of its ability.

SAF military observers in UNIKOM (Kuwait)

The SAF in UN Missions

Since 1991, the SAF has been sending officers to participate in UNIKOM as military observers. SAF officers have also held senior appointments in UNIKOM, including Deputy Force Commander, Chief of Staff, Chief Military Personnel Officer, Deputy Chief Operations Officer and Sector Commander (South) of UNIKOM.

In May 1993, the UN requested Singapore's support for UNTAC, the UN mission overseeing the electoral process in Cambodia. The SAF responded by sending four Super Puma helicopters and 65 servicemen to Cambodia for a one-month tour of duty. The helicopter detachment provided transport for the election officials, ballot boxes and medical casualties, besides conducting aerial policing for UNTAC.

In February 1997, the SAF sent a 5-man medical team to provide medical support to the UN military observers in MINUGUA, the UN mission in Guatemala which re-integrated the guerrillas into society after they were granted amnesty.

From May 1997 to May 1998, the SAF sent LTC Lo Yong Poo to take up the appointment of Military Adviser to UNSMA, the UN mission to facilitate national reconciliation and reconstruction in Afghanistan. In September 1997, heavy fighting broke out in the city of Mazar-i-Sharif and the safety of UN and humanitarian aid staff was at risk. Despite the intense aerial and artillery bombardment, the rapid advance of the opposition forces and their threats to kill UN personnel, and even after arranging for the land and air evacuation of the UN personnel, LTC Lo turned down several opportunities to extricate himself. He chose to remain in Mazar-i-Sharif to accompany the sole UN personnel, a civilian, who had been asked to stay behind.

Singapore has contributed a medical detachment, military observers, logistics support and two LSTs to the UN-sanctioned INTERFET mission to restore peace and stability to East Timor. A total of about 250 personnel are involved in the mission to provide medical relief and logistics support.

The SAF Today

The SAF is a national institution that brings Singaporeans from all walks of life and different backgrounds together in the defence of Singapore. Almost every Singaporean family has sent sons and husbands to undertake National Service, to be prepared for the task of defending family and country. This cohesive, strong SAF is the bedrock on which the peace and prosperity of Singapore have been built.

The SAF's key mission is to deter aggression. When we started 35 years ago, the SAF was just a two-ship navy and two-battalion army. Today, it is a tri-service defence force with a 50,000 strong standing armed forces made up of regulars and full-time National Servicemen and another 300,000 Operationally Ready National Servicemen (NSmen).

Through the years, the SAF's development has focused on two key areas: Operational Readiness and Capability. These are the core attributes that make the SAF a well-integrated fighting force.

An Integrated Fighting Force

The SAF integrates its three Services to fight as one single fighting system. It combines the capabilities and resources of the Army, Republic of Singapore Navy (RSN) and Republic of Singapore Air Force (RSAF) whenever and wherever needed. When an aircraft, a ship, a tank or an individual soldier fights, it is as part of a total system. The operational end result is combat power out of proportion to the size of the SAF. Tri-Service integration makes the SAF stronger than the sum of its three Services.

Joint

In the 1970s and 1980s, the SAF concentrated on building up the individual Services – Army, Air Force and Navy. By the mid-1980s, the three Services were well established. A phase of consolidation followed, during which tri-Service integration was emphasised. This led to the creation of a Joint Staff, which the SAF recognised was key to building a fully integrated SAF.

Today, the Joint Staff drives the integration of the SAF and brings the Services together to meet the goal of enhancing the SAF's capabilities as a whole. The Joint Staff sets priorities and apportions limited manpower and financial resources. When new capabilities are developed, the Joint Staff ensures that these capabilities fit well into the overall fighting system. In operations planning, it optimises the combination of capabilities and resources from the three Services to achieve the mission. The Joint Staff plays the pivotal role to facilitate the Services working together and to provide the direction for new initiatives for the SAF.

Fighting as one

The ARMY

The Army comprises the following:

- three **Combined Arms Divisions** (CADs),
- two **People's Defence Force** (PDF) Commands,
- two **Army Operational Reserve** (AOR) Divisions, and
- several non-Divisional units, such as **Artillery Units**, **Armoured Brigades**, **Commando Battalions**, **Engineer Units**, **Logistics Battalions** and **Signals Battalions.**

The manoeuvre forces of the Army are organised and operate as Combined Arms Divisions. Each Division commands a composite force made up of Infantry troops and other Army elements such as Armour and Artillery. The basic idea is that each Division will have all the necessary men, plus armour, artillery, engineer and other arms it needs to defeat an opposing force.

Capable as they are, the Divisions do not operate with just their own resources. They can also draw on the RSAF and the RSN's extensive capabilities, whenever and wherever needed on the battlefield. This concept gives the SAF a more powerful punch.

The Army's combat power is organised around three key capabilities:

BIONIX IFV – better speed, firepower and protection

- Manoeuvre. The Army can project force rapidly. On land, the new Singapore-made Bionix Infantry Fighting Vehicles (IFVs) together with the upgraded M-113 Armoured Personnel Carriers enable the Army to concentrate forces swiftly where required, with armour protection and substantial firepower. The helicopters operated by the RSAF, and Fast Craft operated by the RSN, allow the Army to exploit both the air and sea dimensions, to deploy, insert and re-deploy forces rapidly.

AH-64 Apache attack helicopter

- Firepower. The Army can also deliver heavy and accurate firepower to every part of the battlefield. Potent weapons like the FH-2000 155mm gun and the Spike anti-tank missile can deliver hard-hitting power at long distances. In the near future the AH-64 Apache attack helicopter will give a quantum increase to the Army's capability.

- Information. The integration of command, control, communications and sensor systems enables the Army to achieve dominant battlefield awareness. This allows the Army to target its units and weapons precisely and at the decisive time.

With all three capabilities in hand, the Army is well positioned to outmanoeuvre the aggressor, strike hard at its vulnerable areas and defeat it.

The Army takes part in joint exercises regularly with other armies. Some exercises are conducted in Thailand, Indonesia, Malaysia and Australia. Jungle training takes place in Brunei. The Army also carries out artillery training in New Zealand. Training overseas not only enables the Army to overcome the shortage of training space in Singapore, but also allows it to benchmark itself against some of the best forces in the Asia-Pacific region during joint exercises.

Armour Training in Shoalwater Bay, Australia

SAF Armoured units carry out training exercises in Australia every year. The nature of the terrain and vegetation and the size of the Shoalwater Bay training area offer realistic conditions and a challenging environment for training. It also allows the SAF's Armour units to fully operationalise their fighting doctrines and capabilities.

The RSAF

The Air Force is structured to protect the integrity of Singapore's airspace and defend against any air threats, and to protect Singapore's access to air and sea lanes. It provides continuous air surveillance and early warning of air threats through a sophisticated sensor system that includes E2C Hawkeye early warning aircraft and air defence radars. The multi-layered air defence umbrella employs air defence fighter aircraft, surface-to-air missiles and anti-aircraft guns. In battle, the RSAF's objective is to achieve air superiority quickly and dominate our skies. The RSAF is also structured to participate with the Army and Navy in land and sea campaigns.

The RSAF operates seven squadrons of multi-role fighter aircraft. They are:

- one squadron of F-16 Fighting Falcons. (A second squadron is training overseas.)
- three squadrons of F-5S/T Tiger aircraft, which have been recently upgraded with advanced electronics and avionics.
- three squadrons of T/A4-SU Super Skyhawk aircraft, which have also been upgraded.

These fighter aircraft are all capable of performing multiple roles, ranging from air defence and air superiority to providing firepower to support land and sea battles. In addition, the RSAF will soon be operating Apache attack helicopters to support land battles.

For air defence operations, the RSAF is also equipped with a wide range of surface-to-air weapons of various types:

Air defence weapons

- The Improved Hawk missile deals with air threats at an effective range of up to 40 km.
- The Rapier, Mistral, RBS-70 and Igla missiles are for use at shorter ranges.
- 35mm Oerlikon guns provide a third line of defence.

The RSAF also has other roles. It transports Army troops with its Chinook, Super Puma and UH-1H helicopters, and C-130 Hercules transport aircraft. And it performs surveillance missions on behalf of the Navy and Army using the Fokker 50 Maritime Patrol Aircraft and Unmanned Air Vehicles (UAVs).

Like the Army, the RSAF does not have sufficient space in Singapore for training. To overcome this problem, the RSAF has training detachments overseas in friendly countries. Two fighter detachments, one transport detachment and one helicopter detachment are based in the United States. There are training detachments in France and Australia, and helicopter detachments in Brunei and Australia. Periodically, detachments also go to regional countries like Indonesia and Thailand for short-term training.

Air-to-air refuelling

Training in such far-away places puts a strain on logistics support. The acquisition of the KC-135 jet-tanker facilitates the RSAF's deployments overseas, and enables flying operations to be sustained for long periods of time.

The RSAF participates regularly in bilateral and multilateral exercises with other air forces, both locally and overseas, and also in multi-service exercises such as the FPDA air defence and maritime exercises. The RSAF has also participated in and won numerous awards in international competitions. Such experiences and training opportunities enhance interoperability and allow the RSAF to benchmark itself against the best in the world.

"Black Widow" Squadron

The RSAF 425th Black Widow Fighter Squadron chalked up several achievements in Luke Air Force Base, Arizona, only months after going operational in May 1997. These achievements reflected the high level of operational readiness and professionalism of RSAF personnel:

- Won the Fighter Wing's five-star gold award for best air crew chief in October 1997.
- Hit the normal flying hour target within two months, four months ahead of schedule.
- Successfully executed its first live bombing exercise after only two months.
- Mounted its first deployment by shifting lock, stock and barrel 4,800km non-stop to Fairbanks, Alaska for a 3-week exercise after just 3 months.

The RSN

Since its humble beginnings, the RSN has strived to become "the best little Navy in the world." Its two-fold mission is to protect Singapore's territorial waters and to keep access to our vital Sea Lines of Communications (SLOCs) open. To do this, the RSN is organised into four Commands:

- The Fleet, which is made up of two Flotillas and a submarine squadron.

  1st Flotilla has three squadrons operating six Missile Corvettes, six Missile Gunboats, and six anti-submarine capable Patrol Craft. Their sophisticated weapon-mix includes the Harpoon missile, the Barak missile, the Mistral surface-to-air missile and the Whitehead torpedo. These ships are augmented by Fokker 50 maritime surveillance aircraft, and air-to-surface firepower from the RSAF's A4-SUs. These capabilities enable the 1st Flotilla to deter and counter surface, sub-surface and air threats to vital SLOCs in the South China Sea and the Malacca Strait. It can also provide long-range escort to merchant vessels sailing to and from Singapore.

Endurance class LSTs

3rd Flotilla is the supply and transportation arm. It operates a range of specialised vessels, including LSTs, Fast Craft for Equipment and Personnel (FCEPs), and Ramp Power Launches (RPL). These provide fast and efficient movement of troops to and from training areas in Singapore and overseas. Some of them have also been used for UN missions and disaster relief work, and to deliver humanitarian aid and support medical aid teams.

The Submarine Squadron is being formed. The Navy has acquired four submarines. The boats and crews are now training in Sweden, and will return over the next few years.

New Submarines

The four RSN submarines are originally of the Sjöormen class. Extensively refurbished, they were renamed the Challenger class, and added a new capability to the Navy. A crew of about 25 men operates each submarine.

On 21 March 1998, the RSN's first submarine, RSS Challenger, conducted her first successful dive off Karlskrona Naval Base in Sweden. Shortly thereafter, RSS Challenger scored a direct torpedo hit on a target ship in Swedish waters. RSS Conqueror will enter Singapore waters, ready for deployment by mid 2000.

- The Coastal Command (COSCOM) is equipped with Patrol Vessels, Inshore Fast Boats, and Mine Counter-Measure Vessels (MCMVs). Its task is to counter surface, sub-surface and mine threats. It relies on a comprehensive shore-based coastal radar system. And it works closely with the Police Coast Guard, Maritime & Port Authority, and Port of Singapore Authority, keeping a reassuring presence in Singapore waters to deter seaward threats and piracy.

- The Naval Logistics Command maintains the Navy's strike and support ships at the highest state of readiness and sustains the RSN's sea deployments for prolonged periods.

- The Training Command trains and nurtures the RSN's officers and specialists in both combat and technical support roles.

The RSN has sailed far and wide to exercise with friendly navies. Such exercises enhance friendship and understanding, and also allow the RSN to benchmark itself against some of the most advanced navies of the world. The RSN participates in the FPDA's annual maritime exercise in the South China Sea with its four FPDA partners. Bilateral anti-submarine exercises are conducted with the Indian Navy's submarines in the Indian Ocean, and with Australian and US submarines off local waters. The RSN also carries out regular Harpoon missile live-firing exercises with the US 7th Fleet in the Pacific Ocean to hone its surface strike capability.

Harpoon live firing

Operational Readiness

Singapore's small size means that the SAF lacks strategic depth to manoeuvre in, or to fall back on. We depend on airborne early warning systems to alert us to any threat. The SAF must also be in a high state of combat readiness at all times, to repel any surprise military attack. This ability to mount an immediate and massive response is a cornerstone of the SAF's operational and development strategies.

Operational readiness has three main components:

Immediate Response. The SAF can respond immediately to any military threat. A vital core of land, sea and air forces is on standby round-the-clock, fully armed and equipped, ready to go into action at a moment's notice. The initial level of response can be rapidly upgraded through the activation of additional battalions and squadrons, and even divisions, if the threat develops further. This immediate response capability is central to Singapore's policy of deterrence.

The SAF in Cambodia

"In July 1997, the SAF mounted an operation to evacuate Singaporeans from Cambodia. The Singaporeans had organised themselves, worked out emergency procedures, set up communications, gathered at designated places, and calmly evacuated from Phnom Penh. Their SAF training showed. The RSAF flew out 450 people from Phnom Penh on six flights in four C-130s. The operation went smoothly."

Deputy Prime Minister **Lee Hsien Loong**,
Straits Times 21 July, 1997

Operationally Ready

Rapid Mobilisation. All three Services are structured and organised so that they can mobilise their manpower, weapons and logistics supply at very short notice. Organisational structures and systems are continually fine-tuned and tested through regular mobilisation exercises. Many of these involve calling up Operationally Ready NSmen who form the bulk of the SAF's manpower, and requisitioning civilian resources which are made available to the SAF in emergency or crisis situations.

Training as in war

Organising and Training Just as in War. The SAF organises and trains exactly as it would fight in an operational scenario. Operationally Ready NSmen responding to mobilisation calls are sometimes thrown into battle exercises immediately after being issued weapons and ammunition. Training is not confined to small unit exercises. Full troop exercises (FTXs) are conducted up to division level.

Operational readiness is not just about getting combat troops ready. The hidden strength of the SAF lies in its systems and logistics support. Tightly integrated computer systems administer a myriad of logistics functions needed to keep the military units humming along. These systems monitor unit readiness and ensure that units are fully equipped and stocked for operations at any time. Our logistics capability sustains the fighting units by ensuring that spares and supplies are available throughout the duration of the operations.

Our People

Quality personnel

The quality of the SAF's fighting units and support systems reflects the quality of its personnel, both regulars and NSmen. The SAF benefits from having a large part of Singapore's talent pool. For example, some of Singapore's top school leavers join our ranks each year as recipients of the SAF Overseas Scholarship, Defence Technology Training Award, and other MINDEF and SAF scholarships.

Quality is not confined just to the top ranks. Across the board, our soldiers are increasingly better educated, especially in technical fields. This makes it possible for the SAF to deploy new and sophisticated weapons, and to leverage on powerful but technically complex systems. At all levels, our officers and men have proven themselves to be among the very best in the world.

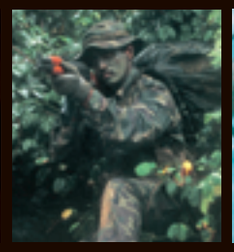
Winning Awards the World Over

CPT Low Chung Guan became only the second international student and the first Singaporean to top his class in the US Air Force Academy in 1995. He beat 1,004 other graduates to emerge as top gun of the academy.

SAF Commando 2WO Punniya Moorthy topped the US Army Special Forces Weapons Sergeant Course at Fort Bragg in 1998. With single-mindedness, he out-performed much younger servicemen, some of whom had seen action in Bosnia and Panama.

SAF Diver SSG Chia Meng Kwan topped the Diver First Class Course conducted in the USN Naval Diving and Salvage Training Centre at Panama City in 1997. The course was so tough that half the class, comprising experienced US and foreign naval divers, did not complete it.

A proud moment for CPT Low Chung Guan



2WO Punniya Moorthy topped US Special Forces Course

SSG Chia Meng Kwan - rigours of combat diving training in the US

Our Citizen Soldiers

The SAF is predominantly a National Service armed forces. Given Singapore's small population, National Service remains the only viable option for building up a defence force capable and formidable enough to deter an external attack. An equivalent standing force of regulars would place an unbearable strain on Singapore's scarce manpower resources. The support and commitment given by our citizens to National Service and the defence of the nation have therefore been crucial not only for the security of Singapore but also for our economic development.

Today, NSmen make up over 80% of the strength of the SAF. For the SAF, there is no clear distinction between the roles of the regulars and NSmen. The NSmen bring with them knowledge and expertise from their civilian jobs. They also contribute a wealth of worldly-wise experience.

National Service contributes to making Singapore stronger in yet another way. It brings together Singaporeans of different racial, religious, linguistic and educational backgrounds, to train and live together. These common life-shaping experiences have helped to foster greater cohesiveness among our people and a strong national identity.

"Whatever you can't defend, doesn't belong to you"

Third Sergeant Chong Yu Meng, 30, wrote to **The New Paper** in February 1999 about his National Service experience. He described his national service as a rite of passage. "It's a different world. You are not coddled by family and school, and you learn about your strengths and limitations. I cannot explain it, you have to go through it to know what it is like." Coming from a comfortable family background, NS was an eye-opener for him, as he met people from all walks of life. "I met people who came from broken homes and some who were thrown out by their families." But he most clearly remembered them as loyal, faithful and honourable men who could be counted on to fight if the need ever arises. In stressing the importance of a strong defence, Third Sergeant Chong used a homespun analogy: "If you have a lot of money but are weak, a robber is not going to listen to your plea for mercy. You have to be strong to stand up to him . . . whatever you can't defend, doesn't belong to you."

Singapore's NSmen have been thoroughly tested over the years, through a multitude of mobilisation exercises and in exercises on the field. In open mobilisations, in which pre-arranged codewords are broadcast over the mass media, a response rate of 95% within the first few hours is the norm. When called upon, our NSmen can be rapidly mobilised, equipped and deployed to carry out their missions.

The capability of an NS unit is no different from that of an active unit. Since the early 1990s, the SAF has been pitting NS units against active units that were at their peak of training and physical fitness. In a series of exercises, the opposing units are required to plan and execute complex and strenuous battles. The NS units performed as well as, and in some cases better than, the active units.

Courage Under Fire

In November 1997, CPT (NS) Kok Yin Khong was serving as a military observer with UNIKOM. During a routine patrol, a fellow military observer was hit after armed men fired at their Patrol Observation Base. Risking his life, CPT(NS) Kok approached his injured colleague during a brief lull in the firing to administer first aid and stop the bleeding. It saved the man's life. CPT (NS) Kok's courage and selfless action reflected the instincts developed during his National Service training. For his act of bravery, CPT (NS) Kok was awarded the SAF Medal for Distinguished Act on 30 May 1998.

The SAF has developed into a well integrated and capable force, ready at a moment's notice to go into action, with the three Services able at all times to support one another in joint operations. The SAF will have to keep pace with changes in the nature of warfare and changes in the threats that may arise. The SAF will have to strive continually to make the best use of its personnel, leverage on new technologies, and collaborate even more closely with supporting MINDEF agencies to develop the new capabilities that will allow it to fulfil its roles in the 21st Century.

Securing Our Future

To stay ahead, the SAF must continually adapt to changes in its operating environment. The SAF's strategy for success in the 21st Century is to build on the right basics that have made it the potent force it is today, and to position itself to take full advantage of new opportunities.

Right Basics

The SAF will continue to deter potential aggressors by maintaining a capable and operationally ready armed forces. Should deterrence fail, the SAF will fight to win swiftly and decisively. This requires that the SAF continue to be a well-integrated force that is trim, balanced and potent. It means that the SAF will have to continue to leverage on technology while building up the fighting skills, the fighting spirit and the will of its people to resist aggression. The SAF's systems, force structure and training will be organised to ensure this.

Positioning for the Future

Key Military Capabilities

Strong capabilities are at the centre of the SAF's defence strategy. In this era of rapid technological change, the SAF's future capabilities will depend on its ability to exploit the technological changes for military advantage. The SAF looks at the new technologies that may impact on military forces and the nature of warfare, and invests resources to develop those that will enhance its capabilities to handle the range of threats it may have to deal with.

Stand-off Precision Technology. The Gulf War and Kosovo conflict demonstrated the increasing use and impact of stand-off precision weapons in modern warfare. As with other armed forces, the SAF will exploit developments in the field of stand-off precision technology, such as high energy technology and global positioning systems to name a few, to strengthen its operational capabilities.

Protection Technology. The SAF has been able to provide better protection for our soldiers in land operations by harnessing improvements in armour technology. With the increasing mechanisation of infantry forces, our soldiers will be able to manoeuvre faster in their operations and with better protection.

Stealth Technology. The SAF can use stealth technology and advances in low observable technology to reduce the signature of its forces and the likelihood of detection. Our new platforms – ships, aircraft and land vehicles – will incorporate more stealth technology to enhance their protection.

Leveraging on unmanned technology

Unmanned Technology. The SAF is unlikely to be able to increase its size significantly despite the need to cope with the expanding demands of modern warfare. It will therefore leverage on the use of unmanned technologies, such as Unmanned Aerial Vehicles (UAVs), robotics and automation, to enhance its capabilities without having more soldiers.

Superiority through Information Technology. The world is moving towards better, faster and more timely flow of information for decision-making using information technology (IT). Dominance in information, commonly known as dominant battlefield awareness, will dramatically change the way armed forces operate in the future. Although the fog of war will not be completely eliminated, commanders will have more information to make better and faster decisions. Having superior information will be as potent or even more potent than having an advantage in firepower. Superior information can reduce risks and improve the chances of success in battle.

Over the next decade, the SAF will invest much effort to achieve higher levels of battlefield awareness. It will focus on building up sensor and early warning capabilities that will enable the SAF to detect threats and have adequate time for response despite our lack of strategic depth.

Battlefield awareness

The SAF will be transformed into a highly digitised armed force to capitalise on the quality of our human resources and new IT developments. However, the increased use of information technology in Singapore and the SAF also means that we need better protection for our IT systems. Research will therefore go into how the SAF can better secure its IT systems.

Enhanced Lift and Endurance. As training areas on the Singapore mainland continue to shrink, the SAF will have to optimise every training area available including offshore islands and international airspace and seas. The SAF will also seek more training facilities from friendly nations to meet its needs. To make full use of these possibilities, the SAF will continue to invest in transportation capabilities such as LSTs and jet tankers. These capabilities are also useful when the SAF has to inter-operate with friendly armed forces in peacekeeping and humanitarian missions, which may be far from the SAF's home bases in Singapore.

In our continual renewal and modernisation programme, one of the criteria in our selection of new platforms will be higher endurance, or range. This will allow us access to more distant training areas and to spend longer training time there, such as in the South China Sea and other overseas training areas open to the SAF. It will also allow the SAF to better sustain a reassuring presence in peacetime, or to support its operations in conflict if this is required.

Advanced Computer Modelling and Simulators. The SAF expects to make greater use of advanced computer models to develop a system approach to resource optimisation, so that we get the most from our limited budget and manpower and the maximum returns from each budget dollar. Advanced

computer modelling will enable the SAF to experiment with different mixes of platforms, weapons and new technologies to arrive at the most cost-effective combination. Advancements in simulation have also given us the means to overcome our limitation in training space. Requirements that cannot be met physically may be met in cyberspace. For example, an infantry section can go through several battle scenarios, ranging from jungle ambushes to fighting in built-up areas, all within the walls of a simulation room. Simulators also allow the SAF to make more effective and efficient use of valuable training time for NSmen within each In-Camp Training period.

Meeting other Contingencies

The threat of terrorist and other forms of subversion cannot be ignored in the years ahead. Terrorist groups, whether acting for their own specific objectives or to serve the interests of states, will increasingly have better access to modern technology and weapons, including unconventional means.

Dealing with terrorist threats

We will need to prepare ourselves to better handle such unconventional threats to our national interests. Today, the Police, the Singapore Civil Defence Force, and other agencies handle many of these contingencies. In the future, we may need different and stronger security responses to deal with such threats, which fall short of the conventional definition of war.

Over the years, the SAF has developed a wide range of capabilities that can be used to reinforce the efforts of other Singapore agencies to counter terrorist and subversive threats should they arise. For example, the Information Technology Defence that the SAF has built up will have spin-off benefits for the protection of the national information infrastructure. Our research work and the capability we have built up in Chemical Defence will be useful should an incident similar to the Sarin gas attack in a Tokyo subway occur in Singapore. The Navy's COSCOM has capabilities to tackle the smuggling of illegal immigrants and piracy. Our Commandos are trained and equipped to deal with terrorists and hijackers. These capabilities of the SAF, together with those of other Singapore agencies, can be employed to swiftly and decisively eliminate such low-intensity threats to Singapore's security.

Building-up capability for chemical defence

Having at hand a wide range of capabilities and options for mounting different responses to low-intensity threats provides only part of the solution. The other part lies in the SAF working seamlessly with agencies from other Ministries to deal effectively with such threats. A key priority for the SAF in the future will therefore be to strengthen its linkages with the other Ministries. This is yet another dimension of Total Defence, which will take on greater significance in the years ahead.

The SAF and the Future

The SAF is the national institution that will ensure Singapore's security and defend Singapore's national interests in the 21st Century. What types of threat to our national interests may arise, at what level of intensity, cannot always be predicted. However, the SAF, working closely with other agencies, will be ready to meet all of these challenges through the careful and systematic build-up of its capabilities and the exploitation of new technologies.

However, technological advances in themselves can never be enough to ensure the security of Singapore. Ultimately, we will have to rely on the courage, fighting spirit, tenacity and strength of our soldiers to ensure that the SAF is an effective deterrent in peacetime, and that the SAF will win decisively in any conflict.

Turning Constraints Into Opportunities

MINDEF and the SAF face tough constraints arising mainly from severe limitations in land, air and sea space in Singapore and a small population. But rather than limiting the growth of the SAF, these constraints have compelled the SAF to look for new ways and new opportunities to do things better.

Maximising Our Defence Dollar

A capable and operationally ready SAF is critical to Singapore's survival and prosperity. Hence, the Singapore Government is committed to spending up to 6% of the Gross Domestic Product (GDP) on defence every year. We adopt a careful and prudent approach, with many stringent safeguards, to ensure that we get good value for our defence spending.

We look for the most cost-effective way to meet our operational requirements. Where it makes sense, the SAF purchases and refurbishes second-hand weapon systems. However, this approach is not always viable as technological advances produce new systems that offer better value. Today the SAF is more likely to buy new systems and customise them to suit our specific needs. But sometimes what we need is either not available or not for sale. When that happens, and if we have sufficient capability, we will specially design and develop platforms or systems on our own, or in collaboration with other parties such as the Singapore defence industry.

Facing page: The Air Combat Simulator in action

MINDEF manages its budget pro-actively on the basis of long-term planning. Our goals are both to get value for money and to maintain a sustainable budget. Capital acquisitions are never undertaken on a piecemeal basis. Each proposed acquisition is carefully examined from the entire system viewpoint. Factors such as capability gaps, projected changes in technology, life-cycle costs, and operational priorities are carefully considered before a decision is made.

Upgrade of MGBs

The Missile Gunboats (MGBs) acquired in the 1970s have played an important role in protecting our Sea Lines of Communications (SLOCs). When the RSN reviewed the MGBs' role as part of the total naval capability build-up in the 1980s, these ships were identified for a mid-life upgrade. Detailed studies had shown that the MGBs' operational lifespan could be lengthened, cost-effectively, by upgrading them with better weapons and sensor suites. The upgraded MGBs have served us well in keeping our SLOCs free and open for the past three decades.

Overcoming Land Constraints

Competing demands for limited land put pressure on the SAF to look for better approaches to meet its infrastructure and training needs. The SAF overcomes the land constraint by optimising land use, training overseas, and using simulation technology.

Optimising Land Use

The new BMTC at Tekong

The SAF works closely with other national agencies to identify commercially less valuable areas to locate its military camps. Often, this puts the camps closer to training areas, thereby reducing transportation time for troops to move from camp to training ground. The development of the Basic Military Training Centre (BMTC) and the School of Infantry Specialists (SISPEC) complexes in Pulau Tekong is a good example of this. New camp designs also make more intensive use of land. Offices and sleeping quarters are housed in multi-storey buildings. Units in the same command are co-located in camp complexes for better operational efficiency. This allows common facilities and services to be shared, resulting in more savings.

MINDEF also continually seeks out new construction technology to optimise land use. In 1999, we launched a plan to excavate a large cavern for an underground ammunition dump out of solid granite. This innovative solution will free more than 300 hectares of surface land area, which is large enough to build half a New Town.

Underground Ammunition Dump at Mandai

Deep below ground level at Mandai, MINDEF is constructing its first underground rock cavern ammunition facility. To be completed in 2003, this underground ammunition dump project is pioneering the development of leading edge technology in rock cavern engineering. A significant saving in land is possible because large tracts of land do not need to be sterilised to meet safety standards. Advanced features in the design, such as sophisticated fire and smoke detection devices and specially designed blast doors, cater for safety. The design also makes use of water mitigation and ground shock technologies to further enhance safety.

Training Overseas

Training in Australia

The SAF has been looking for opportunities for training in friendly countries since the 1970s. Today, the SAF trains in many countries, including Thailand, Brunei, Indonesia, Australia, New Zealand, France, Sweden, South Africa, Canada, and the United States. Such training facilities have helped to meet a big portion of the SAF's requirements for large scale and complex exercises. They also promote closer relations with our overseas counterparts and raise the professionalism of our soldiers. An excellent example is our RSAF fighter pilots who train alongside the United States Air Force. Their outstanding performance during friendly competitions affirms the quality of our men, machines and systems.

Use of Simulation Technology

The SAF has invested heavily in simulation technology to overcome land constraints. Today's simulators render a high degree of realism. Army tank crews using the Integrated Armour Tactical Trainer can roam realistic landscapes hunting down enemy forces. The benefits are numerous. Besides substituting for field training, simulators also allow for some types of training that would not be possible in as realistic a manner in real life. For example, in a simulator a pilot can be safely taught difficult manoeuvres like emergency handling. And air traffic controller trainees can be drilled in various emergency procedures without endangering any lives or property.

SIMLAB – Realism in Virtual Training

The SIMulation system for LAnd Battles (SIMLAB) trains commanders and their staff in making decisions and co-ordinating combat units in the battlefield. The system is capable of simulating military exercises up to division level.

SIMLAB injects realism into such exercises by pitting commanders of opposing forces against each other in two-sided exercises. It provides accurate simulation of land, sea and air movements in situations that arise during actual warfare and allows live communications with exercise units. For example, if a simulated battalion comes to a large river and its commander has forgotten to bring along the necessary crossing means, it will not be allowed to cross. The commander will have to modify his course of action and his plans. SIMLAB records every event and decision in an exercise and the information can be played back later to assess the performance of the trainees and to draw lessons from. SIMLAB also allows the SAF to conduct force development and deployment experiments that will help to enhance our force capability.

Optimising Manpower

Given our small population, Singapore cannot maintain an adequate standing force of SAF regulars without draining the national manpower pool and impeding our economic growth. The solution to this is National Service. Instead of relying solely on career soldiers for our defence, every able-bodied male Singaporean is conscripted for two or two and a half years of full-time National Service. Thereafter, he returns for operational training every year for 13 years. He remains liable for National Service until the age of 40 for warrant officers and specialists, and the age of 50 for officers.

The men of Singapore have to make a substantial commitment of their time for National Service. Even then, this is just enough to develop the defence capability we require. It works only because we optimise the time spent by every National Serviceman in the SAF. We maximise the contribution of National Servicemen by increasing the combat effectiveness of each and every serviceman, including optimising their deployment and training time.

Increasing Individual Combat Effectiveness

FH2000 training in New Zealand

The rising educational standards among our National Servicemen have enabled the SAF to leverage on technology as a force multiplier. In other words, we use technology to do more with fewer people. One example is the FH-2000 155mm self-propelled howitzer gun. It delivers higher firepower and longer range but uses a crew of 8 instead of the 12 for the gun it replaced. Similarly, the new Endurance Class LST is 40% larger and twice as fast as its predecessor, but operates with only half the crew of the ex-County Class LST.

At the ground level, we have also combined force restructuring with technology so that each unit can do more with fewer soldiers. For example, in the late 1980s, the size of an Infantry Section was reduced from nine to seven men, and an Infantry Battalion was reduced from four to three Companies. These cuts did not compromise the combat effectiveness of our Infantry units. On the contrary, our Infantry Battalion today, though leaner, packs a more lethal punch. At the Section level, our soldiers are now equipped with grenade launchers, sub-machineguns and anti-tank missiles. Even the individual rifleman has become more deadly, with the introduction of the new SAR-21 rifle that has an in-built laser-aiming device and optical scope.

Endurance Class LST

The SAF is replacing its ex-County Class LSTs with the new Endurance Class LSTs. Innovative and modern technologies have been incorporated to ensure higher system reliability and availability, and more automation of tasks. As a result, although the new LSTs are larger and more complex, they require less maintenance and a smaller crew. The Endurance Class LST carries a crew of only 65 compared to 130 for the ex-County Class ships.

Every Soldier Counts

To the SAF, every soldier counts. We therefore try to optimise the deployment of our servicemen without compromising their safety. Towards this end, we continually fine-tune our medical classification system to ensure that everyone can be deployed to the maximum of his ability. For example, prior to 1995, servicemen medically classified PES C were not deployed in operational appointments. In 1995, the PES C medical grading was sub-divided. The refinement allowed personnel with medical conditions that precluded them from certain physical or field activities to be safely deployed in other operational roles. We also review our medical guidelines regularly, taking into account medical trends and advances in medical science. The result is a reduction in deployment mismatches, which means better safety, less training injuries, and maximum use of manpower.

To further improve deployability, the SAF tailored its training programmes to the individual fitness level of our National Servicemen. For example, the Basic Military Training (BMT) programme has been refined. Those who are physically fit attend a 3-month programme while those who are less fit go through an additional 2-month preparatory training phase before BMT. A special 4-month BMT programme helps obese recruits to gradually improve their physical fitness and prepare them for combat vocations.

Being a conscript defence force, the SAF has only a limited period in which to train our National Servicemen and prepare them for an operational role. We must therefore optimise their time spent in the SAF. This is achieved partly through more effective training programmes and partly through new weapons and equipment that are easy to operate and master. The new Bionix Infantry Fighting Vehicle, for instance, requires only a short period of familiarisation training before the crew can operate it.

The SAF has also moved some of the training outside formal in-camp periods, so that NSmen have more flexibility in tailoring their time to their obligations. For example, instead of a whole battalion being called up for physical fitness tests, NSmen can choose their own test date and venue. Internet technology has enabled NS commanders to do self-paced refresher training in the convenience of their homes prior to their in-camp call-ups, so that they can have a shorter in-camp duration.

Optimising the contributions of our soldiers does not stop at merely training them to become competent in the shortest possible time. More importantly, we actively encourage thinking soldiers, and tap them for ideas to improve the organisation and the way we operate.

Ideas & Suggestions

The SAF Suggestions Scheme was launched in 1976. Today, a strong culture of continuous improvement and an active productivity movement are entrenched in the SAF. Each and every soldier can make an important contribution to organisational efficiency. First Sergeant Tan Gak Seng is one such serviceman. He suggested building a shelter over a rifle range so that practice lessons could continue even during wet weather. As a result of First Sergeant Tan's suggestion, the Nee Soon 100-metre range today has skylight roofing and covered link-ways. With these improvements, soldiers no longer need to sit around waiting for the rain to stop but can continue their range practices even when it rains. A simple idea has thus helped to optimise the time of our servicemen and enhanced our operational readiness.

Using Non-Military Resources

The SAF has systematically identified areas where non-military resources can contribute to our defence needs. We tap civil resources for emergencies. We also use civilian resources by commercialising non-operational areas. For example, the RSAF has commercialised many of its non-core functions, channelling the NS manpower to more critical operational areas. Similarly, with the commercialisation of SAF cookhouses and improved field rations, field kitchens and NS cooks have become a thing of the past.

Requisition of Civil Resources

The use of civil resources (CR) is part of our Total Defence concept, in which all sectors participate in and contribute to Singapore's defence. In peacetime, civil resources are productively employed for economic purposes. In an emergency, these resources will be requisitioned and committed to the areas of greatest national need. Currently, about 8,000 CR assets, including aircraft, vessels and vehicles, are earmarked to support the SAF and other Ministries.

Commercialisation in the RSAF

Since the 1980s, the RSAF has adopted a deliberate policy to commercialise its non-core functions, such as the maintenance of ground support equipment, ground logistics support, warehousing functions, and the maintenance of trainer aircraft. In the 1990s, the RSAF ventured further to commercialise some areas that directly support operations, particularly for our transport aircraft like the F-50 and C-130. In this case, the scope of commercialisation covered the entire spectrum of maintenance activities, from depot maintenance to first-line direct maintenance support. This makes the RSAF one of the few air forces in the world where civilian contractors have been fully integrated into frontline operations. The RSAF's commercialisation effort in the 1990s has allowed the re-deployment of some 1,600 servicemen to meet other operational requirements.

Commercialisation of SAF Cookhouses

This initiative has achieved significant manpower savings and improved morale. Servicemen now enjoy a wider variety and better food. The commercialisation allowed the re-deployment of more than 750 soldiers – enough to form a Battalion and more – to more critical operational appointments in MINDEF and the SAF.

The Future

Singapore's limitations in terms of physical space and population size are constraints that the SAF will always have to work with. However, just as post-independence Singapore was forced to adopt a new and open economic model that has brought us the economic success we enjoy today, these constraints have also given rise to opportunities. The challenges they raise force us to come up with creative solutions that can further enhance our capabilities. In the process, Singapore has and will continue to develop a credible defence force that will serve us well in the 21st Century.

Sharpening the Technological Edge

A Strategic Component of the SAF

The SAF recognised the critical importance of technology since its earliest days. Over the years, we have built up a strong defence technological capability. Today, technology is integrated into all aspects of the SAF's operations. The SAF operates weapon systems and equipment that are often enhanced or specially tailored to its unique operating requirements. Some of these are indigenously produced and some purchased off the shelf. As force multipliers, technology has enhanced the capabilities of the SAF in many areas.

Building a Strong Indigenous Technological Capability

We will continue to have a strong indigenous technological capability so that the SAF can continue to develop its own "silver bullets", such as Electronic Warfare, for that extra edge. An indigenous defence technological capability also allows the SAF to customise and develop weapon systems to meet its own unique operational requirements. The SAF operates in an environment that is quite different from many of the countries that supply our weapon systems, so customising the weapon systems we buy from others would maximise the SAF's effectiveness. Having a technological capability also means that we can develop weapon systems specially for the SAF, by making use of commercial-off-the-shelf equipment to reduce cost and development lead-time.

Strengthening our Defence Technology Linkages

Three complementary technological entities support the SAF: the Defence Technology Group in MINDEF for programme evaluation and management, DSO National Laboratories for research and development, and the Singapore defence industry for engineering, production and industrial support. They will need to keep up with the rapid pace of technological changes, so that they can continue to develop the capabilities that keep the SAF on the cutting edge of technology.

Defence Technology Group

The Defence Technology Group (DTG) is responsible for the acquisition of weapon systems required by the SAF. It also develops command and control systems and specialised infrastructure to meet the unique operational requirements of the SAF.

The DTG adopts a total system approach in acquisition, development and integration of defence systems and facilities. It upgrades existing weapon systems to extend their useful lives as and when it is economical to do so.

Advanced weapon systems by themselves cannot win a war. The man behind the weapon system is always more important. Technology has been exploited to reduce the load on our soldiers and improve their performance in battle. New equipment is designed to be easy to use and ergonomic.

Upgraded E-2C Airborne Early Warning Aircraft

The E-2C aircraft was acquired from the US in the mid-1980s. Today, the explosion of advances in computing has rendered its military computers obsolete and increasingly difficult to maintain. And it could not meet the demands for better performance.

Before upgrade

After upgrade

Together with the Singapore defence industry, the DTG upgraded the entire computing and software systems. State-of-the-art equipment was adapted to the harsh military environment and millions of lines of code were rewritten. The engineers also made sure that the system would be easy to upgrade, so that new technologies could be inserted in the future. The software was entirely rewritten to meet real-time performance needs while giving a more user-friendly look and feel.

SAR 21

The Singapore-built SAR 21 assault rifle is designed with our soldiers in mind. Specially sized to fit our soldiers, it requires no zeroing and can be used by both left and right-handed soldiers. Stripping and re-assembly is a breeze. Using the SAR 21, our soldiers can hit targets at long distances and accurately.

DSO National Laboratories

The Defence Science Organisation (DSO), the research and development arm of MINDEF, started in 1972 when then Minister for Defence, Dr Goh Keng Swee, assembled a small group of engineers and scientists. DSO has since grown into a premier R&D organisation, the largest in Singapore, with a wide range of capabilities. It is the primary vehicle for developing "silver bullets" for the SAF. DSO is also a major resource in our acquisitions, upgrading and industry development, as it provides leading edge scientific expertise and state-of-the-art technology. DSO's capabilities are applied in:

- designing special systems as part of weapon systems development programmes;
- integrating weapon platforms with special systems, such as in the RSAF's A-4s, F-5s and F-16s;
- designing high performance sub-systems encapsulating leading edge technologies, such as the airborne computing engine;
- developing materials, equipment and methods for effective protection against chemical and biological weapons;
- developing electronic warfare solutions that provide shields around aircraft, ships and fighting vehicles to protect them from incoming threats; and
- protecting the military communications and computing infrastructure from external attack.

Anechoic chamber is used to check the performance of radar systems

"The SAF depends on the ingenuity and innovativeness of DSO engineers because electronic warfare is regarded as a secret art that no country wants to share. At best, overseas suppliers are prepared to sell us black boxes."

Deputy Prime Minister & Minister for Defence **Dr Tony Tan** at the opening of the Marina Hill complex of DSO National Laboratories in Oct 1998.

The technology environment has changed dramatically in recent years. Commercial technologies now lead the way in areas such as computing, communications and software. As the national R&D infrastructure has also matured considerably, DSO was corporatised on 1 April 1997 to allow it more flexibility in leveraging on foreign technology and tapping Singapore's own technology. Besides delivering advanced technologies and systems to the SAF, corporatisation also enabled DSO to contribute more effectively to the technological needs at the national level, such as the protection of vital information infrastructures.

Singapore Defence Industry

The Singapore defence industry is a vital component of our defence capability. It was started to provide in-country engineering, production and maintenance capabilities. Today, it supports the needs of the SAF with high technology weapons and provides essential products and services to the SAF cost-effectively.

For the past three decades, the Singapore Technologies companies have undertaken activities ranging from the manufacturing of weapons and ammunition to the development of advanced weapon systems and upgrading of major naval, air and land fighting platforms. Upgrading programmes included the M-113 armoured personnel carrier, and A-4 and F-5 fighter aircraft. Systems integration and development of weapon systems included the FH-2000 howitzer gun, Bionix Infantry Fighting Vehicle (IFV), SAR 21 assault rifle and Endurance Class Landing Ship Tank (LST). The local design and development of military hardware has broadened and deepened the technological capability of the defence industry. The SAF has also benefited by having more responsive local support and better sustainability.

The military officers, programme managers and engineers in the SAF, MINDEF, and the defence industry work as a team to develop weapon systems for the SAF. This tripartite relationship has been vital to the development of a strong indigenous defence technological capability in Singapore.

The Singapore defence industry's customers are not limited to the SAF. Today, Singapore Technologies is a technology-based multi-national corporation based in Singapore, with operations and customers in many countries. The larger business base makes it more efficient in supporting the SAF.

Bionix Infantry Fighting Vehicle

In 1989, the Army realised that it needed more armoured vehicles. What was available on the market did not meet the SAF's operational requirements. Thus began the design and development of Singapore's own Infantry Fighting Vehicle.

The SAF, DTG and Singapore Technologies worked together to design and build a completely new vehicle. Named Bionix, the locally developed IFV packs a powerful punch, has all-terrain mobility and yet is as easy to drive as a car. A powerful diesel engine and hydro-pneumatic transmission give it excellent speed cross-country and a top speed of 70 km/h. Mounted with machine guns and medium-calibre cannon which can fire at targets on the move, the Bionix adds firepower to an armoured assault.

Upgraded F-5 Fighter Aircraft

The upgraded F-5 features a new radar and an avionics system that rival those of modern fighters such as the F-16. The RSAF, DTG and Singapore Technologies Aerospace jointly undertook the upgrading work. The RSAF now has a highly capable modern jet fighter at a fraction of the cost of new aircraft. The fleet of upgraded F-5s has been integrated successfully into Singapore's air defence system and all the RSAF F-5 squadrons have attained full operational capability.

Key Thrusts

Two key thrusts point the way to the future:

Strengthening Technological Collaboration

In the unfolding Revolution in Military Affairs, the digital battlefield of the future and the need for commercial technology in IT and communications will influence the approach we take to ensure that we sustain a technological edge. As a small country with limited resources, we must collaborate nationally and forge partnerships internationally to develop the defence and commercial technologies we require. MINDEF collaborates with universities and research institutes both in Singapore and abroad, and with defence research establishments and commercial enterprises in many countries.

Local collaboration

Singapore universities and research institutes are valuable sources of technological know-how that can be tapped for defence. For example, MINDEF has set up research centres for protective technology with NUS and NTU. Another example is the successful collaboration between MINDEF and the Institute of High Performance Computing to develop a 3-dimensional software which allows naval vessel designers to better appreciate the effects of underwater explosions. Such an approach economises on national resources for research.

Overseas collaboration

Singapore has built up a strong capability to defend our population against chemical threats. Today, our DSO Centre for Chemical Defence is among a small number of laboratories being considered by the Organisation for Prohibition of Chemical Warfare (OPCW) for international analytical accreditation. Collaboration projects with Swedish and French defence research establishments contributed significantly to building up our expertise.

Laboratory tour of DSO Centre for Chemical Defence during OPCW Director-General's visit

Establishment of the Defence Science and Technology Agency

The growing use of technology by the SAF means more demand for DTG's services and the need for more scientists and engineers. MINDEF will have to compete with the rest of the economy for this limited pool of manpower resources. It would need to make good use of external expertise wherever possible. MINDEF therefore decided to transform DTG into a statutory board called the Defence Science and Technology Agency (DSTA) in April 2000. DSTA will have the operating flexibility to recruit and deploy talent, and to draw on external resources by collaborating with others. It would also be better positioned to make use of commercial and dual-use technologies.

The mission of DSTA is to harness and exploit science and technology to meet the defence and national security needs of Singapore.

As executive agent for MINDEF, DSTA's roles and functions are to:

- acquire weapon systems for the SAF;
- advise MINDEF on all defence science and technology matters;
- manage defence research and development;
- develop military infrastructure;
- provide engineering and related services in defence areas; and
- promote and facilitate the development of defence science and technology in Singapore.

Technology is an important force multiplier for the SAF. The SAF will continue to leverage on technology in every dimension of its operations. MINDEF will ensure that we continue to attract a fair share of the national talent and develop a pool of competent and dedicated scientists and engineers who are committed to Singapore's defence.

Ready and Vigilant for the Future

We live in an increasingly inter-dependent world. Small countries like Singapore, with open economies and few resources, are especially vulnerable to external shocks. We have no choice but to face up to these challenges, as we have faced up to other challenges in the past.

One of our greatest challenges is to continue to maintain vigilance and readiness. We have enjoyed peace and stability and the fruits of such a positive climate for many years. But we must not forget that the peace and stability did not come by chance. Nor is there any guarantee that we will always have peace and stability. As a small and young nation, we cannot take our future security for granted. Neither can we depend on others to defend us. We shall have to continue to place a premium on a strong defence.

Challenges Ahead

Our security environment remains dynamic and uncertain. The post-Cold War world is still in the process of transformation. How this transformation will take shape in the coming years, no one really knows. But we do know that as Singapore integrates more fully with the rest of the world, we will be exposed to a broader range of security challenges, some of which may be unconventional in nature.

Our armed forces must be trained and prepared to contend with these new challenges and to keep up with a modern battlefield that is fast being transformed by the developments in information technology. Being small and nimble is an advantage in keeping up with rapid advances in weapons technology. It also means that we can adapt faster to changes in the way wars will be fought.

At the same time, a growing population and greater competition for living and work space will mean that we have to manage our limited defence resources even more carefully. Finding innovative ways to overcome our resource constraints will continue to be a key challenge in the future.

The Defence of Singapore in the 21st Century

MINDEF and the SAF are entrusted with the important task of protecting Singapore's sovereignty and interests. We will continue to ensure that none of these are compromised.

In the 21st Century, the fundamental tenets of our defence policy will not change. Our defence policy will continue to be based on diplomacy and deterrence. The twin strategies of diplomacy and deterrence have proven effective in securing our peace and stability since our independence. We shall enhance our efforts in diplomacy and deterrence in order to safeguard our interests in a globalised era. The two key thrusts are:

- To strengthen dialogue, confidence-building and co-operation in the region and beyond. Singapore will work with friendly countries to promote dialogue, confidence-building and co-operation to maintain a peaceful and stable regional and international environment. MINDEF and the SAF will play our parts to promote greater bilateral and multilateral defence co-operation and dialogue among regional and extra-regional armed forces and defence establishments, so as to foster understanding and trust.

- To strengthen our capabilities to deal with a wider range of security challenges. To tackle the diverse range of security challenges in the new millennium, Singapore will strengthen the five components of Total Defence. MINDEF and the SAF will work more closely with other government agencies to develop a multi-layered defence against the various security challenges, including unconventional threats.

The SAF is well-equipped to defend Singapore's sovereignty, territorial integrity and national interests. But we can always do better. We must continue to invest in a well-trained, highly motivated and technologically advanced SAF that will guarantee Singapore's continued survival and success. To ensure that the SAF can meet the challenges of a modern and high-tech battlefield in the 21st Century, MINDEF and the SAF will adopt the following strategies:

- Develop new capabilities and doctrines. To stay abreast of the changing nature of warfare, the SAF will develop new capabilities and fighting doctrines to complement its existing capabilities. It will exploit developments in the RMA, such as the integration of information technology into weapon systems to achieve superiority in the battlefield.

- Develop better skills and talent. More important than having good hardware is having good people. MINDEF will harness its well-educated, talented workforce to develop thinking warriors and a technologically savvy fighting force that will prevail in tomorrow's high-tech, information-intensive battlefield. We will maximise the potential and productivity of our people through better training systems and by promoting a work environment that recognises and rewards creativity, innovation and initiative. MINDEF will also ensure that a career in the SAF remains attractive so that we continue to get the best.

- Develop a stronger technological base. Technology will remain a powerful force multiplier for the SAF. MINDEF will continue to deepen its technological base. We will foster a strong indigenous defence technology capability in Singapore to meet and support the SAF's requirements. We will continue to expand our international linkages and strategic partnerships with foreign armed forces and research bodies. This ongoing effort to source key technologies from overseas will help to keep the SAF at the cutting edge of military technology.

Everyone has a part to play

The efforts of MINDEF and the SAF by themselves are not sufficient. A credible defence force does not depend only on hardware and capable people. It depends ultimately on “heartware”. Our continued survival and security will continue to rest on the commitment of every Singaporean to the defence of Singapore.

The SAF draws its strength from every Singaporean . The peace and stability of the last three and a half decades was built upon the sacrifice and dedication of our NSmen, together with a core of steady regulars. While hi-tech capabilities will afford the SAF strategic and tactical advantages, it is ultimately the courage, fighting spirit and tenacity of its men that will determine the strength of the SAF. Our security in this new century will likewise depend on the commitment, motivation and fighting spirit of future generations of our NSmen.

A strong and technologically advanced SAF will be up to its task with the backing and support from a united people. At the core of Singapore’s defence efforts is the will and resolve of each and every Singaporean to come to the defence of the nation should the need ever arise. Singapore’s future survival, security and success rest in our hands, and in the hearts and minds of each and every Singaporean. In unity, vigilance and readiness, we will realise our vision of a First World Economy and a World Class Home.

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